Trends in the Cost of Production and
Purchasing Power of Fruits

Thesis

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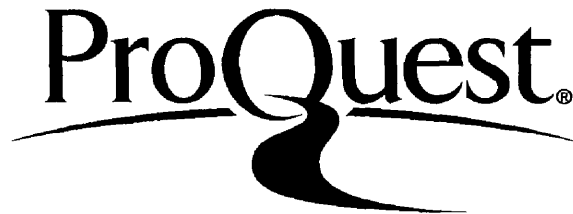of
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by

George N. Motts

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INTRODUCTION

The orchard or vineyard owner faces the possibility of changes in the margin of unit profits as surely as any other producer, but, unlike most industrial and some types of agricultural producers, he is not able to make quick adjustments in either the volume or the kind of production in which he is engaged. It is all the more necessary, then, that those now engaged in this form of production, as well as those who may contemplate such an enterprise, have available information that may aid them to adjust their plans to the conditions of the present or the future, in so far as the future may be anticipated.

An attempt to record the changes that have occurred in the margin of profit per unit requires that two factors be studied: (1) the cost in terms of goods and services consumed or employed in its production during the period of years studied and (2) the quantity of goods and services that can be obtained in exchange for a unit of the commodity from time to time. In order to record the changes in the prosperity of the grower more fully the changes in the number of units produced and sold must also be considered,

as the net income of the producer is the product of his unit margin of profit and the number of units sold.

PURPOSE

The purpose of this study is to record the changes that have occurred in the cost of production and purchasing power of some of the fruits of major importance in the United States. This purpose includes more specifically -

1. Assembling data on costs of production of different important fruits and noting changes in their trends from decade to decade.

2. Assembling data on prices of these several fruits and deriving their changes in purchasing power.

3. Comparing the changes in the purchasing power of the selected fruits with one another and with those of four agricultural commodities; butter, beef cattle, hogs, and wheat, and noting changes in trends.

4. Presenting some of the factors involved in the changes in costs of production and purchasing power of the fruits.

5. Sketching broadly the changes in the profitableness of growing some of the more important fruits.

MATERIALS

The fruits included in this study are apples, pears, peaches, plums, cherries, grapes, oranges, and grapefruit. No attempt has been made to trace changes in the cost of

production of the four agricultural staples and some of the fruits, in the former case because it lay outside the field of the study, and in the latter case because of insufficient data. Most of the general material and specific fruit and agricultural commodity prices were drawn from files of the agricultural magazines, especially prior to 1914, as follows:

American Agriculturist	Vols.	I-XCVII	1843-1897
American Farmer	"	I-XII	1819-1830
	"	XXXIX-XLII	1857-1861
	"	LVIII-LX	1876-1878
Country Gentleman	"	I-XCIX	1853-1929
Genessee Farmer	"	III	1833
	"	V-IX	1838-1839
(New Genessee Farmer)	"	I	1840
New Series	"	3	1842
	"	10	1849-1850
	"	18-20	1857-1859
	"	25-26	1864-1865
Michigan Farmer	"	III	1845-1846
	"	VII-XVI	1849-1858
Second Series	"	2	1863
Third Series	"	I-II	1870-1871
	"	VII-CLXXII	1876-1929
New England Farmer	"	X-XIII	1831-1834
	"	XVIII-XXII	1840-1842
	"	IX-XV	1857-1863
New Jersey Farmer	"	III-VI	1857-1861
Ohio Cultivator	"	XIII-XVI	1857-1861
Prairie Farmer, New Series	"	XIV-XXI	1854-1868
	"	39-58	1868-1886
Rural New Yorker	"	II-LXXXVIII	1851-1929
Valley Farmer	"	X-XIII	1857-1861
Wisconsin Farmer	"	IX-XVIII	1857-1866

The publications of the United States Department of Agriculture, such as the Yearbooks, departmental bulletins, market reports and similar source materials supplied additional data. A number of experiment station bulletins furnished further material. General horticultural books served as sources of information and aided in the interpretation of results.

METHODS

Collection of Data - Because most of the prices quoted in the periodicals and other publications were wholesale, they have been used as the basis of the purchasing power. studies, though in some instances prices paid to the producer have been used because the former were not available. Since the purchasing power is computed from price indices, the discrepancy between the two is for the most part negligible. The prices of the four agricultural staples have been widely recorded for considerable periods of years, but it was possible to extend some of these price series by the use of the same "Market" sections of the magazine files as were used for the fruit prices.

Grades - It was necessary to decide arbitrarily which of the particular grades of the respective commodities were to be used. Not only are more grades employed today for most of the commodities than in the past, but different names have been applied to the same grade at different

times and in different markets. Grades are now more
accurately defined and consequently great care was
necessary in compiling the prices that the same or
equivalent grade be used throughout each price series.
To illustrate the problem presented in varying degrees
by each of the commodities, some of the classifications
encountered in apple grades are mentioned. Apples were
quoted as "Apples, $ - to $ - per barrel or per bushel,"
"Dessert and Cooking," "Best and Inferior," "Table and
Common," "Good and Common," "Choice, Fall, and Common,"
"Sour, Sweet, and Common," "Choice, Good, Shipping, and
Common," "Extra Dessert, Prime, Medium, and Common,"
and finally, either "Extra Fancy, Fancy, A, B, and Commercial"
or "Fancy, U. S. No. 1, and U. S. No. 2." As time went
on, individual varieties were named and the range of
prices indicated several grades. If an average of all
varieties could not be made from the price reports, or
even of the few most important varieties, a grade was
selected for the graded fruit and the price of that
grade was used. An effort was made to select a grade
that would represent the bulk of the sales of each commodity.

Specific grades were quoted for each of the four
agricultural commodities throughout the study, and a
few grades were generally mentioned for apples, pears,
and peaches by 1880. Thus, for the last 50 years these
commodities have usually been recorded by comparable grades.

The other fruits were not generally as well graded. It was possible, whenever a change in grade nomenclature occurred, to compare the prices of each of the grades in both classifications and thus to establish the particular grades in the new nomenclature comparable to those of the old. The background of information supplied by the source materials themselves aided considerably in making these evaluations or adjustments between grade classifications. Finally, while recognizing the limitations of the material and the methods employed in its collection, it seems that the price series are compiled with an accuracy comparable to   the all-commodity index, especially prior to 1890. The particular grade or grades used for each of the commodities are as follows:

Apples, Pears, and Peaches: The purpose was to secure the prices paid for good, first grade fruit. Such fruit would probably be graded today as U. S. No.1 or as A grade in New York and Michigan or as Choice to Fancy in the box apple states. It is not a fancy or extra fancy grade as those grades are defined in the box apple states or in the New England states or Michigan. It is, however, distinctly better than the B grade or U. S. No. 2, which is essentially a cooking grade.

Sour cherries: As specific grades were rarely mentioned, the prices were averaged when only a single

range was quoted. When two or three qualities were indicated, the better of the two or the middle one of the three was selected.

Plums: The prices of the domestica varieties were used and were collected in the same manner as the cherry prices.

Grapes: The prices are for Concords, except in the case of California data, and were compiled in the same way as the cherry prices.

Oranges and grapefruit: The prices were compiled by the Bureau of Statistical and Historical Research of the U. S. D. A. and are the average prices of all sales on the markets used in the study.

Butter: The quality called at various times "Tub," "Table," "Choice," or "Creamery 1sts" was used.

Beef cattle: The prices are for live weight per hundred pounds at the stockyards for "Good-Choice" or "Good-Prime" cattle. At times only the average of all sales was available and in these cases a slight amount was added to make them comparable to the rest of the series.

Hogs: The prices are for live weight per hundred pounds at the stockyards for "Good-Prime" at New York and "Heavy" at Chicago.

Wheat: The average for all kinds of wheat in New York and Virginia, and for "No. 1 Northern Spring" at Chicago from 1866 to 1893 and for "No. 2 Red Winter"

from 1894 to 1929 was used.

Units of Sale -   During the years covered by the magazine files from which the bulk of the fruit prices were obtained, the fruits were handled in different sizes and types of containers. Apples have been quoted by the barrel, bushel, and box; pears by the barrel, bushel, and box; peaches by the bushel, carrier, and basket; plums by the bushel and basket; cherries by the bushel, crate, basket, quart, and pound; grapes by the ton, bushel, basket, and pound; oranges and grapefruit by the 1000, barrel, half barrel, large box, small box, and box. Notes in the price quotations or in articles in other parts of the magazines permitted the conversion of all these various units to the standard units now used, viz.: apples, pears, peaches, and plums by the bushel, cherries and grapes by the pound, and oranges and grapefruit by the box, using the legal or usual weights of the particular fruits in the respective containers.

Season of Price Data -   The season or period of time over which the prices were averaged to secure a figure for each particular year was so far as possible the "home-grown" season in which the bulk of the crop of that region moved to market. The purpose was to eliminate as much as possible the shipments from considerable distances. The seasons used for the particular fruits on the New York and Detroit markets are as follows: The apple prices on

both markets are for October and November; the peach prices for September in New York and for August and September in Detroit; the pear prices on both markets are for September and October; the plum prices are for the last half of August and the first half of September, varying somewhat with the years, on both markets; the July cherry prices are used on both markets; the grape prices are for October on both markets. The orange and grapefruit seasons in both California and Florida start in the fall and continue into the spring and the price of the 1890-1891 crop, for example, is listed in this study as the 1891 price.

Since the seasonal trends in the prices of the agricultural staples were rather uniform from year to year the prices for the first of January, April, July, and October were averaged to secure the year's price. Treatment of Data - The period 1910-1914, inclusive, has been selected as a base for comparison of prices, because most of the agricultural production and price indices have been made with this base.

The all-commodity wholesale price index of the Bureau of Labor Statistics is used in this study in calculating the purchasing power of the commodities. Because the weighted index of wholesale prices has not been computed prior to 1890, the unweighted series furnished by the U. S. Bureau of Labor Statistics beginning with the year 1801 is included in the Appendix. Although 1926 is

the base of the index at present, it is here converted
to the 1910-1914 base, and is so given in the Appendix.
A part of the letter of Mr. Charles E. Baldwin, Acting
Commissioner of Labor Statistics, is quoted to show the
computation of the index; it also indicates that the price
series of the commodities compiled in this study are prob-
ably as accurate as the index itself, especially prior to
1890:

"The regular weighted series of index numbers of the
Bureau of Labor Statistics begins with 1890.

"The index numbers from 1801 to 1840 are arithmetic
averages of unweighted relative prices of commodities, as
published in Appendix F, of Bulletin No. 367 of this bureau.
They were originally compiled by Alvin H. Hansen of the
University of Minnesota with 1825 as the base year, but
are here converted to the 1926 base.

"The index numbers from 1841 to 1889 are from
"Wholesale Prices, Wages, and Transportation" (Senate Report,
No. 1394, Finance Committee, 2nd Session, 52nd Congress,
Part 1, page 91). Originally these figures were computed
with 1860 as 100, but are also converted to the 1926 base
for the purpose of comparison.

"In using these index numbers it should be borne in
mind that the figures here shown are not strictly comparable,
since they are based on different lists of commodities in
different markets and are, moreover, unweighted for the
years prior to 1890. It is believed, however, that they

reflect with fair degree of accuracy wholesale price changes
in general over the whole period."

A retail index would have been preferable, as the
growers buy most of their goods at retail prices, but
the retail all-commodity index of the Bureau of Labor
Statistics only goes back to 1890. It seemed more
accurate to use the wholesale index than a hypothetical
one based upon the difference between the wholesale
and retail price indices since 1890. Although there is
a spread between the wholesale and retail prices, the
wholesale and retail indices are series of percentages
rather than of absolute values. For this reason it
appears that the wholesale price index series permits
a purchasing power series which closely approximates the
actual purchasing power conditions that have prevailed.

When the purchasing power series had been calculated,
they were plotted on the semi-logarithmic scale and the
trend lines were fitted by the method of least squares.
The semi-logarithmic scale shows the absolute changes as
well as the changes in the rate of change and thus is
more likely to imply that the future direction of the
trend line is as likely to change as to remain as it is,
and that if it does change its direction, the degree and
duration of the change cannot be exactly predicted. In
the series of charts that comprise the most essential
part of the purchasing power study, there appears once

for each commodity a broken line that indicates the purchasing power from year to year accompanied by the trend line of that series. Other charts compare the trends of purchasing power of two or more of the fruits. Because the formula used in fitting the trend line requires an unbroken sequence of numbers, the graphs extend back only to the years beginning an unbroken sequence. In a number of cases data were available for scattered years prior to the year in which the graph was started. Those price indices and purchasing power numbers are included in the tables in the Appendix from which the graphs are constructed. The tables are intended also to afford a convenient reference to the index numbers for any one year, as the values can be read only approximately from the graphs.

PRESENTATION OF DATA

A presentation of all the detailed data, even in tabular form, that were collected and computed on yields, grades, production costs, prices and purchasing power would make the text proper too bulky. Some of the more important and representative figures are included in the Appendix, and some are presented in the text in graphic form. What appears here in the main part of the text is more in the nature of a brief discussion or interpretation of the records in terms of present day conditions.

APPLES

Yields - A number of recent experiment station studies
(4, 9, 30, 40, 41, 58, 82, 83) report yields which, when
compared with the references on yields in the old
magazines, indicate that there has been little or no
change in yields per tree in orchards with comparable
care. The increase in the percentage of trees in
commercial orchards has made possible approximately the
same size crop with a smaller total number of apple trees.
In some of these studies a slight decline appears, probably
due to increased age combined with close planting. There
has not been a noticeable upward trend in the yield per
tree in commercial orchards for the country as a whole.

Grades - Extremely little information is available on
the percentages of apple crops sold in different grades in
the earlier years of the study. Less attention was paid
to grading and the specifications of a grade were more
likely to change from season to season than the per-
centage sold in each grade. A number of recent studies
(7, 9, 30, 34, 37, 40, 58, 59, 74, 82, 117) show that
the portion of the crop sold above Grade B or U. S. No. 2
generally constitutes about 50 per cent of the crop.
In the case of the better growers or better varieties
or both this portion of the crop may rise some years to
about 75 per cent. The proportion of cider apples,
windfalls, and culls is usually given as from 10 to 20

per cent. The percentage of culls has been markedly
reduced since the advent of spraying, but there are so
few earlier references on this point that the exact
change cannot be well determined. The B grade or
U. S. No. 2 might be called a buffer grade, frequently
combined with the A grade or U. S. No. 1 in years of
small crops and with the culls in years of large crops.
Cost of Production - Any attempt to estimate the cost
of production for the country at large must necessarily
be in general terms. The costs of picking, grading,
packing, and selling apples have increased in their pro-
portion to the selling price and, taken together, they
now constitute from one-third to one-half of the f.o.b.
price (6, 9, 34, 42). The costs of production have also
been markedly increased by larger fixed expenses, spray
programs, fertilizer and cover crop treatments, higher
prices and larger amounts of labor and materials, and
the increasing necessity of offering a more carefully
graded product in better packages.

Many fragmentary accounts, when pieced together
and evaluated, indicate that the costs of production
for the country at large have been substantially as
follows: from 1850-1875, about $1.00 per barrel;
from 1875-1900, from $1.00 to $1.25 per barrel; from
1900-1914, increasing to a range of from $1.25 to $1.50

per barrel; and from 1914-1930, increasing to a range of
from $2.00 to over $3.00 per barrel, although somewhat
less now (1930) than in 1919-1920. In the 1914-1930
period the larger part of the supply was produced at
a cost of from $2.50 to $2.75. As the amount of goods
secured in exchange for a sales unit of a fruit in the
base period of 1910-1914 is used in this study to measure
the purchasing power of similar units in other years, so
the 1910-1914 dollar must be used to express the com-
parable costs of production. When reduced to this basis,
the above costs become as follows: from 1850 to 1875,
about $ .85 per barrel; from 1875 to 1900, from $1.06
to $1.33 per barrel; from 1900 to 1914, increasing to
between $1.33 and $1.61 per barrel; from 1914 to 1930
between $1.27 and $1.91, with the larger part of the
supply produced at a cost of $1.50 to $1.75. In terms
of goods the cost of apples is at present from one and
a half to two times as great as in the period from
1850 to 1875.

Purchasing Power -   A record of the purchasing power
of apples on several city markets and in Virginia is
presented in Figures 1 to 5, inclusive. They are based
on price data for New York (2, 35, 43, 77, 106, 109),
Detroit (60, 94), Boston (67, 75, 88), Jonesboro, southern
Illinois (69), and Virginia (71). The trend of apple
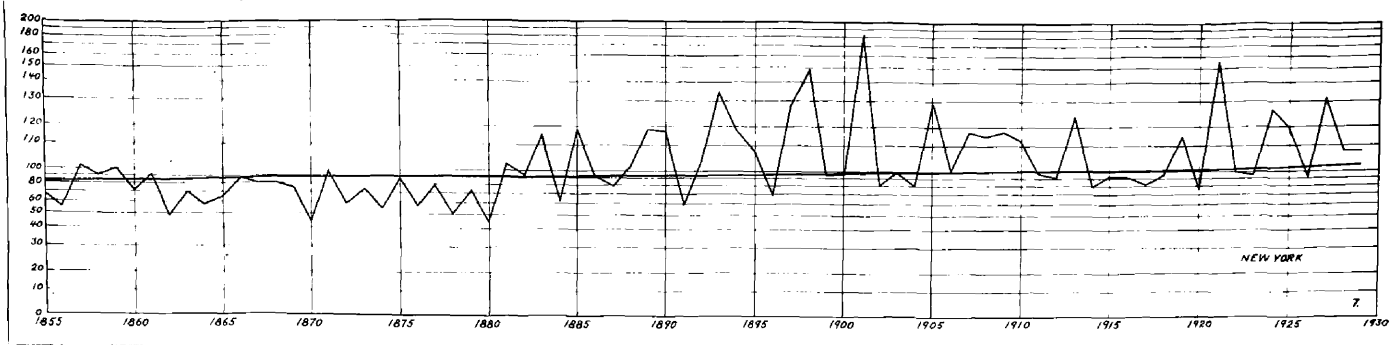
Fig. 1. Purchasing power of apples in New York, 1855-1929. St.E.
±25.40. See Table 16.
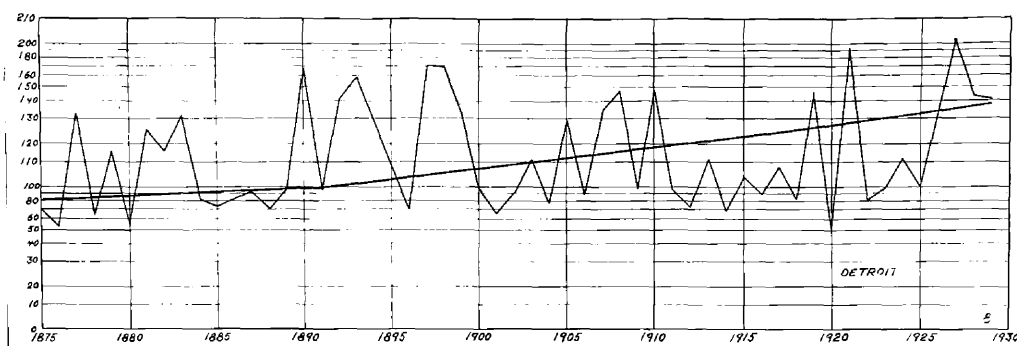
Fig. 2. Purchasing power of apples in Detroit 1875-1929. St.E.
±53.84. See Table 16.
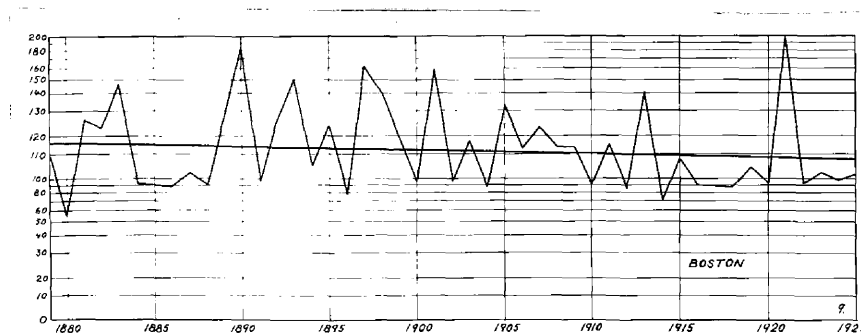
Fig. 3. Purchasing power of apples in Boston, 1879-1925. St.E.
±28.51. See Table 16.
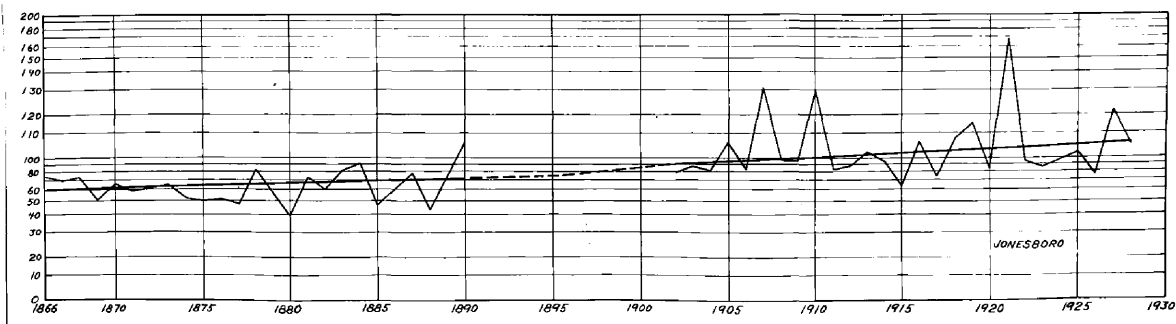
Fig. 4. Purchasing power of apples in Jonesboro, 1866-1890, 1902-1928. St.E.±15.7, ±16.9. See Table 16.
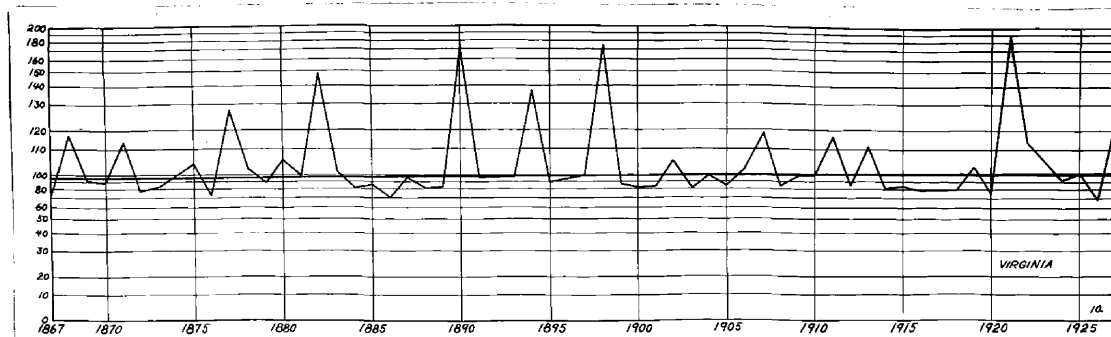
Fig. 5. Purchasing power of apples in Virginia, 1867-1927. St.E. ±34.94. See Table 16.

purchasing power has been downward in Boston, horizontal in Virginia, very slightly upward in New York and Jonesboro, and slightly upward in Detroit. The degree of slope of the trend lines of the graphs included in this study is described according to the scale of measurement indicated in the footnote below.*

An inspection of the graphs shows that there are two cyclical trends, although no effort was made to fit such curves. There is a short cycle of about 4 years and a longer cycle of about 14 years. There may be deviations of a year or so one way or another from the lengths stated, but in the majority of cases the peaks or troughs of the cycles occur with considerable regularity.

Similar records of the changes in the purchasing power of apples since 1910 have been computed for six

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* The value of "b", in the standard straight line trend formula, $y = a + bx$, is a measure of the slope of the trend line. If the trend is downward, "b" is negative, if the trend is upward, "b" is positive. As described in this study:

If "b" equals 0, the trend is considered horizontal
"   "   "   0 to .5, the trend is considered very slight
"   "   "   1, the trend is considered slight
"   "   "   2, "   "   "   "   moderate
"   "   "   3, "   "   "   "   decided
"   "   "   4, "   "   "   "   very decided

Trends with values of "b" between these points are considered the type to which their "b" value is closest. Parabolic trends are considered as that one of the above types to which they are most closely comparable.

of the more important or representative apple states as follows: New York (47, 89), Michigan (46, 94), and Virginia (48, 97) in Figure 6 and Colorado (45, 101), Missouri (96), and Washington (49, 102) in Figure 7. In these charts for recent trends the prices received by the growers, and not the wholesale prices, were used. The trend since 1910 has been slightly downward in Colorado, slightly upward in Michigan, moderately upward in Missouri and Washington and decidedly upward in New York and Virginia.

The change from month to month in the price of apples and consequently in their purchasing power is of interest, as it reflects the influence of apple storage. A comparison of the October and April price indices has been made by Scoville (82), beginning with 1889, but in order to show the monthly changes and to include a few years prior to the Civil War, Table 1 is presented. This table is computed from the wholesale prices per barrel of Rhode Island Greenings on the New York market (82). The index numbers are based on the five year average prices for the respective months. The five year averages of the all-commodity index numbers are included in the table to indicate the general price levels of the selected periods.
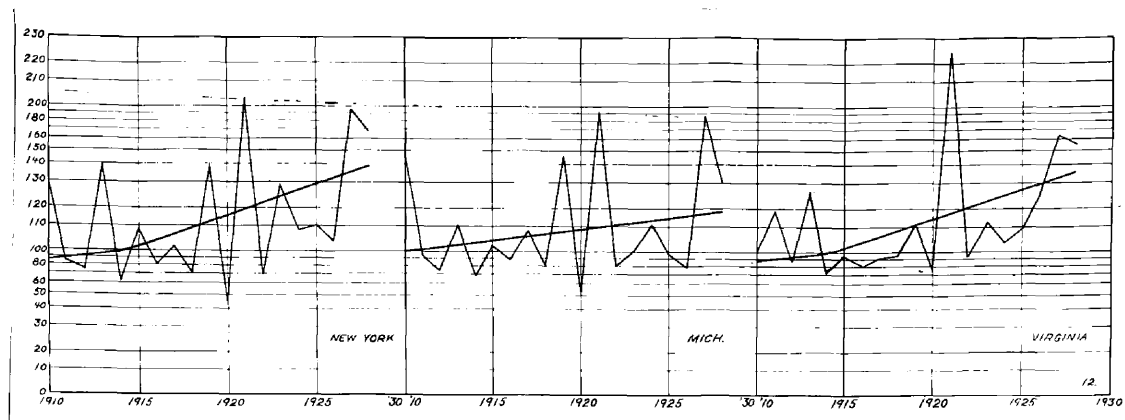
Fig. 6. Recent trends of apple purchasing power in New York,
Michigan, and Virginia. St.E. ±38.95, ±32.40, ±32.40.
See Table 17.
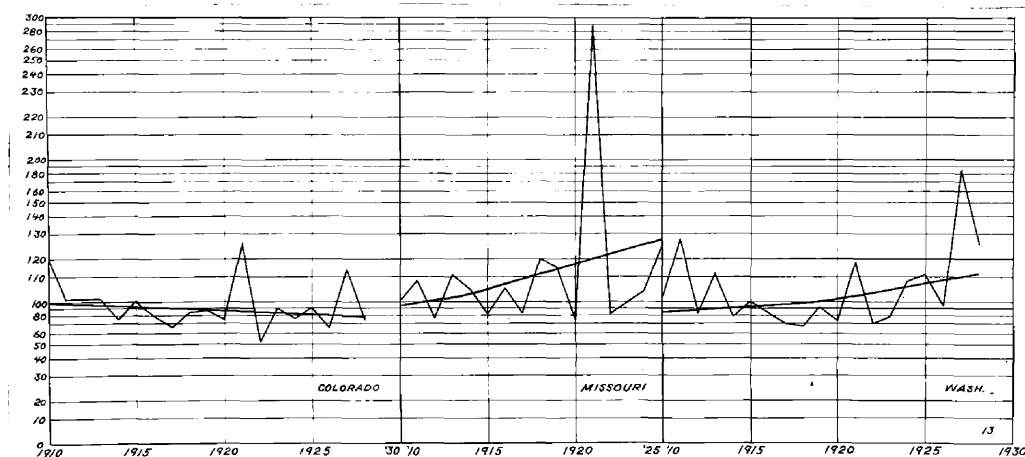
Fig. 7. Recent trends of apple purchasing power in Colorado,
Missouri, and Washington. St.E. ±18.16, ±47.23, ±26.55.
See Table 17.

Table 1.- The average monthly price indices of
Rhode Island Greening apples in New
York for selected years.

Month	'53-'58	'94-'99	'09-'14	'16-'21	'25-'30
Sept.	67	65	69	80	85
Oct.	74	63	73	72	84
Nov.	80	77	86	93	94
Dec.	100	94	95	96	101
Jan.	101	103	99	106	106
Feb.	108	112	101	114	109
Mar.	126	122	107	114	111
Apr.	118	141	118	113	94
May	111	124	128	131	115
June	114		123	81	
A.C.I. ave.	98.7	70.2	100.1	191.5	151.1

The data in Table 1 show that, relatively, the fall
price has been rising toward the average season price and
that the spring price has been declining slightly toward
the average season price. This is what might be expected
from an increase in storage facilities.

PEARS

Purchasing Power -   The changes in the purchasing power
of pears on the New York (2,77) and Detroit (60) markets
are shown in Figures 8 and 9, respectively. The trend
of purchasing power on the New York market might be
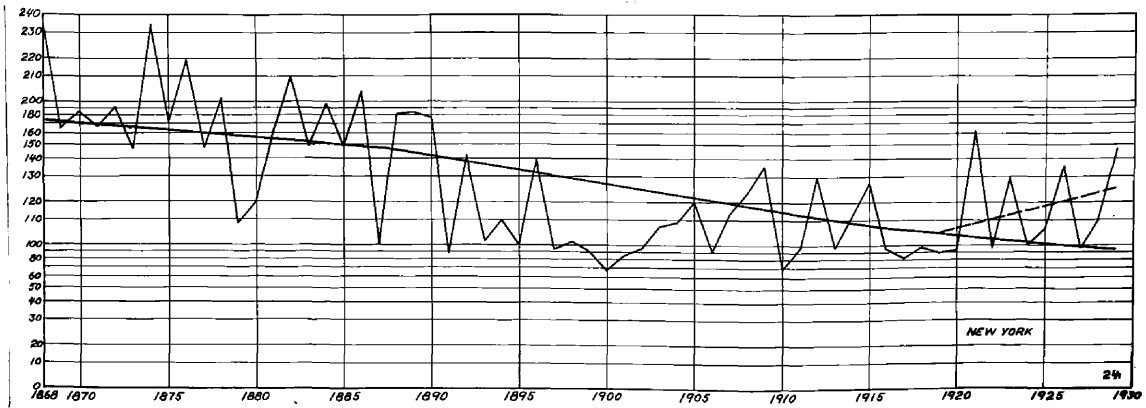
Fig. 8. Purchasing power of pears in New York, 1868-1929. St.E.
±34.81. See Table 18.
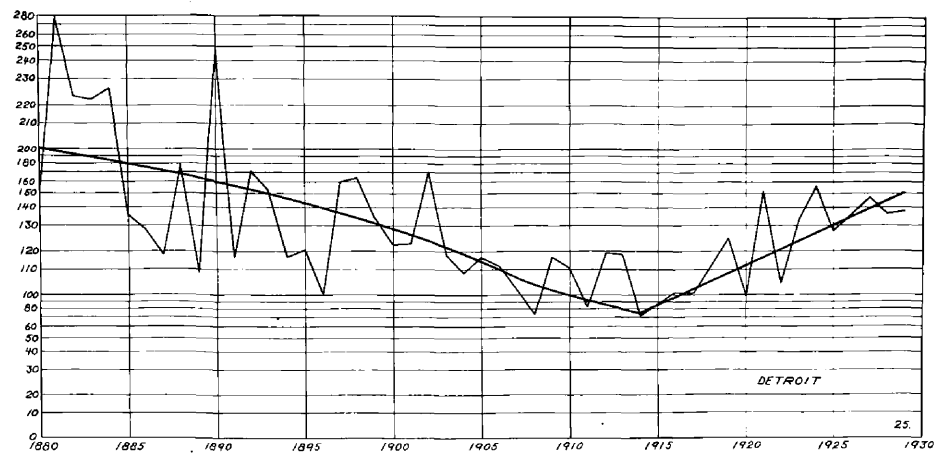
Fig. 9. Purchasing power of pears in Detroit, 1880-1929. St.E.
18.95, 15.0. See Table 18.
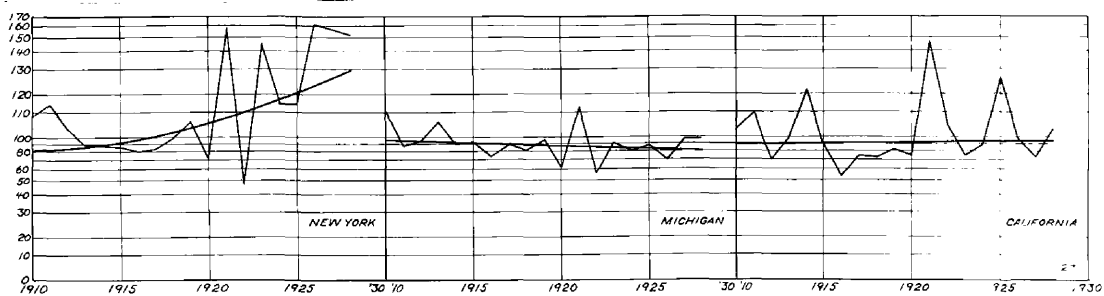
Fig. 10. Recent trends of pear purchasing power in New York,
Michigan, and California. St.E. 38.55, ±14.42, 22.82.
See Table 19.

considered to be more strongly downward than the trend line indicates until 1900 and slightly upward since then. The trend from 1919 to 1929 has been dotted as in some of the other charts.

The short cycle of purchasing power has been from 4 to 5 years on the New York market and from 3 to 4 years at Detroit. The longer cycles on these two markets have been about 13 and 10 years, respectively.

Figures 8 and 9 show that there has been a slight downward trend in purchasing power in New York and a decidedly downward trend in Detroit. Since 1914 the trend has been very decidedly upward in Detroit and since 1919 moderately upward in New York. Although the value of "b" in the New York trend places it in the "slightly down" class, the trend appears steeper than it really is, due to the fact that most of trend line lies within the zone of widely spaced lines on the scale, emphasizing the slope.

The recent changes in purchasing power of pears in three states are shown in Figure 10. The prices used are those received by the growers in New York (51, 90), Michigan (50, 95), and California (102). In New York the purchasing power has decidedly increased since 1910, while declining slightly in Michigan, and remaining practically unchanged in California.

PEACHES

<u>Yields</u> - The accounts of peach yields have varied as widely as those of apple yields and it is equally difficult

difficult to say just what the averages have been. The evidence indicates, however, that between 1850 and the end of the century 200 to 250 bushels per acre was considered a "very good" yield, 125 to 150 bushels a "good" yield, and 90 to 100 bushels an "average" yield for commercial plantings. Since 1900, yields have been somewhat higher with "very good" yields of 250 to 300 bushels per acre, "good" yields of 175 to 200 bushels, and "average" yields of 125 to 150 bushels. The increase of 35 to 50 bushels per acre has been ascribed, among other factors, to more effective cultivation practices, lighter pruning, and the use of "P.D.B." (5), but considerable increases are doubtless due to the more efficient management of larger orchards and the shift in locations with a larger number of trees in the better locations. The latter two factors apply particularly to commercial orchards. Since the life of a peach orchard is much shorter than that of an apple orchard, there can be a more rapid shift in plantings as the less favorable sites are discovered and then abandoned.

Cost of Production -   The average costs of peach production per bushel for the various periods considered in this study lay for the most part within the following ranges: 1850-1875, from $ .35 to $ .40; 1875-1900, from $ .40 to $ .50; 1900-1914, from $ .65 to $ .75;

1914-1929, from $ .85 to $1.40, with the larger part of
the crops produced within a range of from $ .95 to $1.05.
When these costs are expressed in terms of the 1910-1914
dollar they become as follows: 1850-1875, from $ .30 to
$ .34; 1875-1900, from $ .42 to $ .53; 1900-1914, from
$ .69 to $ .80; 1914-1929, from $ .54 to $ .89, with a
narrower range of from $ .60 to $ .67 for the larger part
of the crops. The cost of peach production at present is
apparently twice or a little more than twice the cost from
1850 to 1875 when expressed in terms of goods. The increase
in the cost per bushel would have continued after 1914,
as in the case of apples, had there not been an apparent
increase in the general average yield per acre.

Purchasing Power -   The changes in the purchasing power
of peaches on the New York (2, 77) and Detroit (60) markets
are shown in Figures 11 and 12, respectively. Because an
inspection of the New York graph suggests that the purchas-
ing power has been rising since 1915, the trend line since
that date is added to Figure 11. The long time trend on
the New York market has been decidedly downward, with a
moderate rise since 1915, and the trend in Detroit has
been moderately downward. The short cycle appears to be
from 4 to 5 years on the New York market and about 4
years in Detroit. The longer cycle is about 9 years
long on both markets.
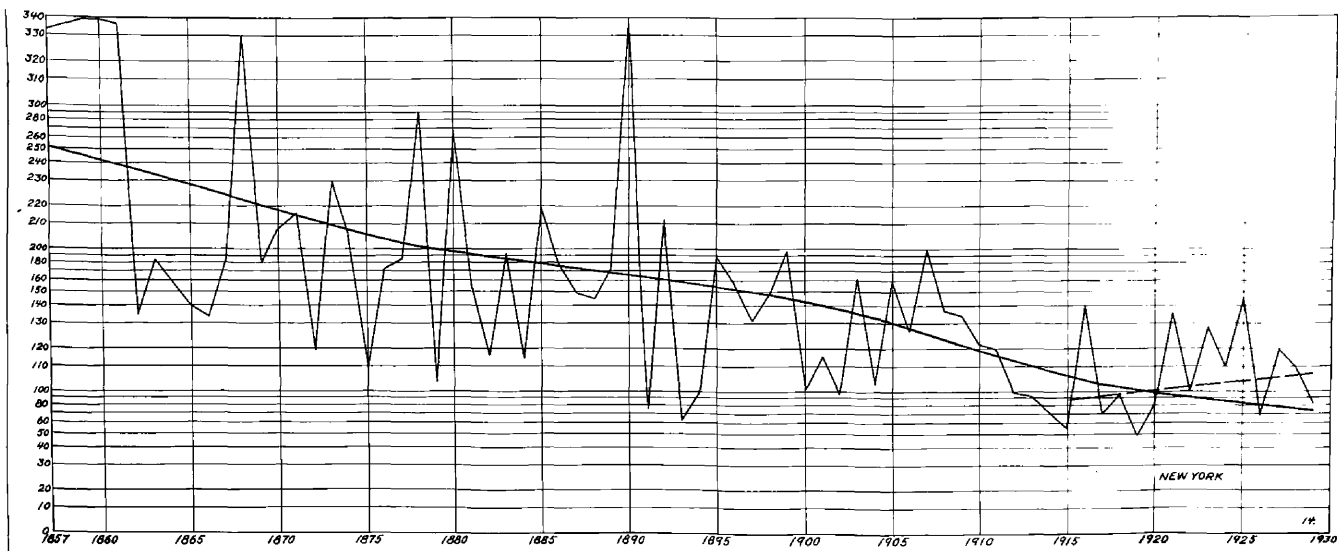
Fig. 11. Purchasing power of peaches in New York, 1857-1929.
St.E. ±60.02. See Table 20.
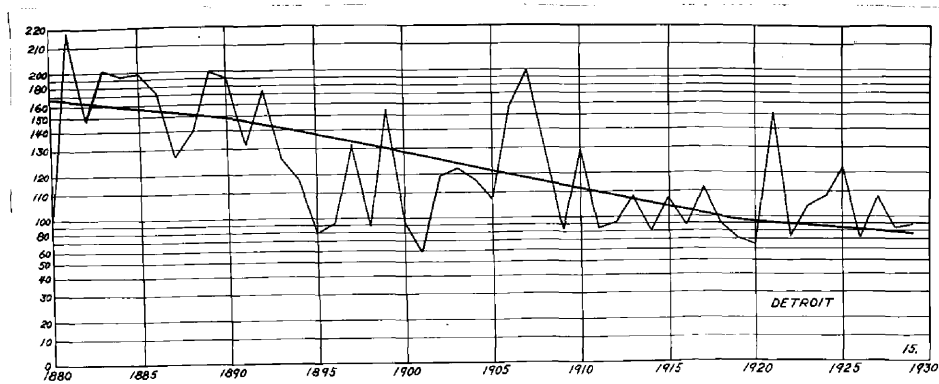
Fig. 12. Purchasing power of peaches in Detroit, 1880-1929.
St.E. ±31.98. See Table 20.

The trends of peach purchasing power since 1910 in some of the leading peach states, based on the prices to producers, are presented in Figures 13, 14, and 15. Figure 13 shows the trends in Georgia (52, 99) and North Carolina (54, 98); Figure 14, the trends in Arkansas (100), Illinois (93), and California (103), and Figure 15, those in Michigan (53, 94), and New York (55, 89). The recent trend of purchasing power has been moderately downward in California, slightly downward in New York, Michigan, and Georgia, very slightly upward in Arkansas and North Carolina, and moderately upward in Illinois.

PLUMS

<u>Purchasing Power</u> - The changes in the purchasing power of the Domestica varieties of plums (with some Japanese types probably included) on the New York (2, 77) and Detroit (60) markets are presented in Figures 16 and 17, respectively.

The short cycle of purchasing power is about 5 years on both markets and the long cycle appears to be 12 and 11 years long on the New York and Detroit markets, respectively.

The purchasing power of plums has declined moderately in New York and very decidedly in Detroit, but since 1910 in Detroit and 1915 in New York the trend has been upward until in 1929 the level of 1895 was reached in New York and the level of 1890 was reached in Detroit.
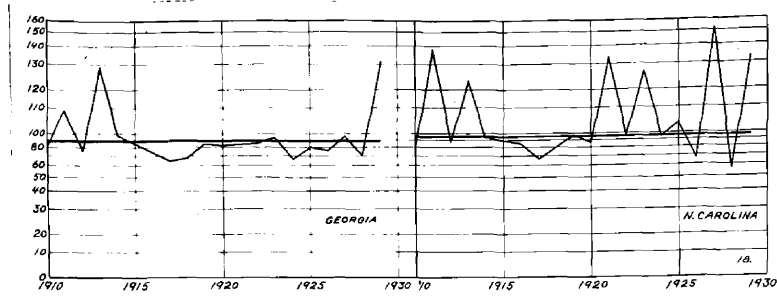
Fig. 13. Recent trends of peach purchasing power in Georgia and North Carolina. St.E. ±27.48, ±26.30. See Table 21.
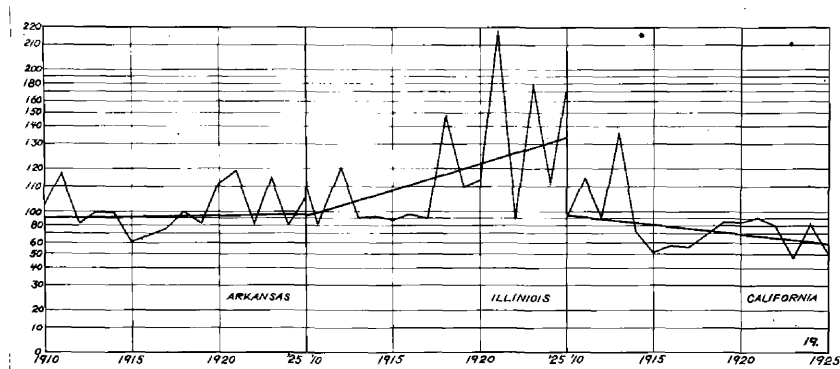
Fig. 14. Recent trends of peach purchasing power in Arkansas, Illinois, and California. St.E. ±17.29, ±31.62, ±20.93. See Table 21.
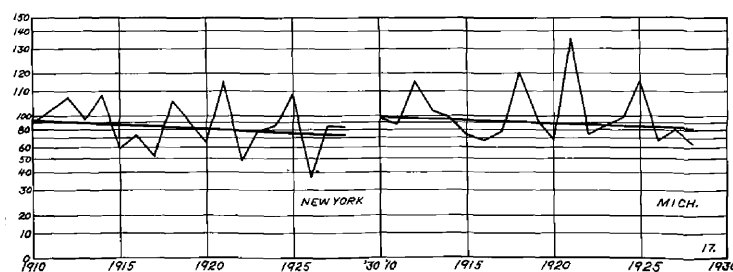
Fig.-15. Recent trends of peach purchasing power in New York and Michigan. St.E. ±19.70, ±21.10. See Table 21.
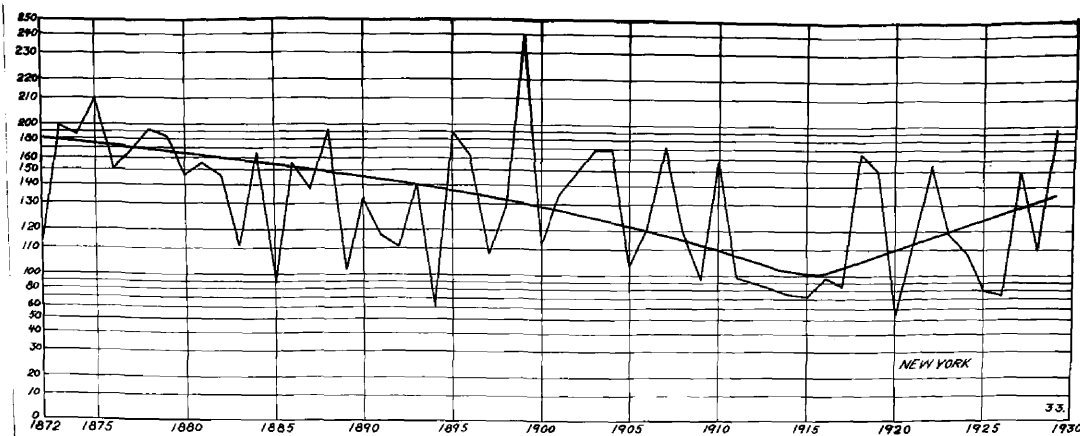
Fig. 16. Purchasing power of plums in New York, 1872-1929. St.E.
± 42.63, ± 37.66. See Table 22.
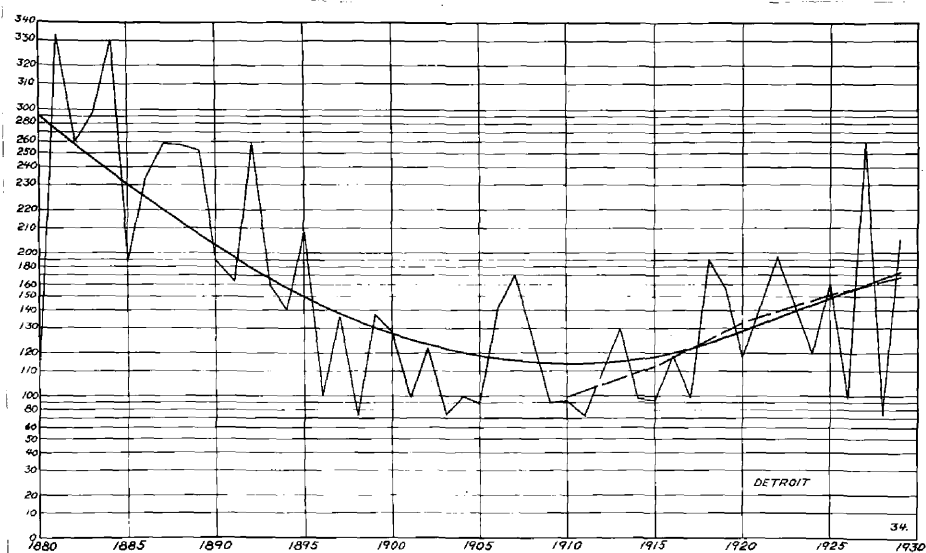
Fig. 17. Purchasing power of plums in Detroit, 1880-1929. St.E.
±48.54. See Table 22.

CHERRIES

Purchasing Power -   Until about 1900 most of the sour
cherries were sold as fresh fruit, but since that time
an increasing proportion of the crops has been sold to
canneries, and the cannery prices do not parallel very
closely the fresh fruit prices on the New York and Detroit
markets.   Nevertheless, the changes in the purchasing
power of fresh sour cherries on the New York (2, 77)
and Detroit (60) markets are presented in Figures 18
and 19 for what they may be worth.   In general they
indicate a slight but continued downward trend in
purchasing power.

The short cycle of purchasing power is about 4
years on both markets and the long cycle is apparently
about 10 years long in New York and 9 years in Detroit.

GRAPES

Yields-   The available information when summarized
indicates that there has been no material change in the
yields per acre of the Eastern or Labrusca grapes.   Only
the Concord or similar Eastern varieties are used in this
study with one exception, the recent trend of purchasing
power of California grapes.

Purchasing Power -   The changes in the purchasing power
of Concord grapes in New York (2, 77, 107) and Detroit
(60) are presented in Figures 20 and 21, respectively.

The decline in the purchasing power of the Concord
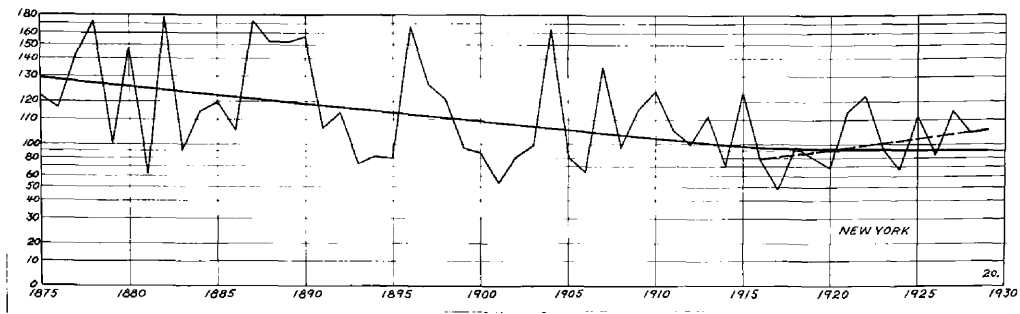
Fig. 18. Purchasing power of cherries in New York, 1875-1929.
St.E. ± 29.31. See Table 23.
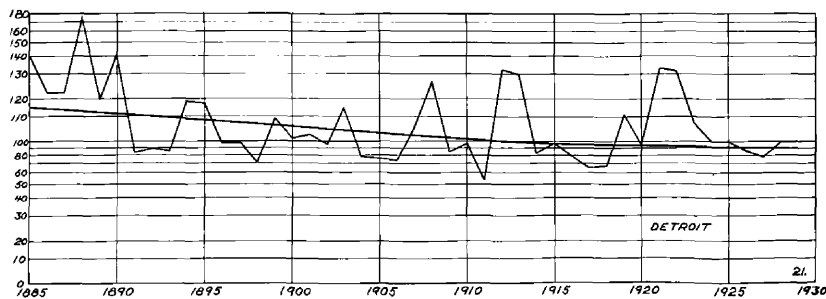
Fig. 19. Purchasing power of cherries in Detroit, 1885-1929.
St.E. ± 23.02. See Table 23.
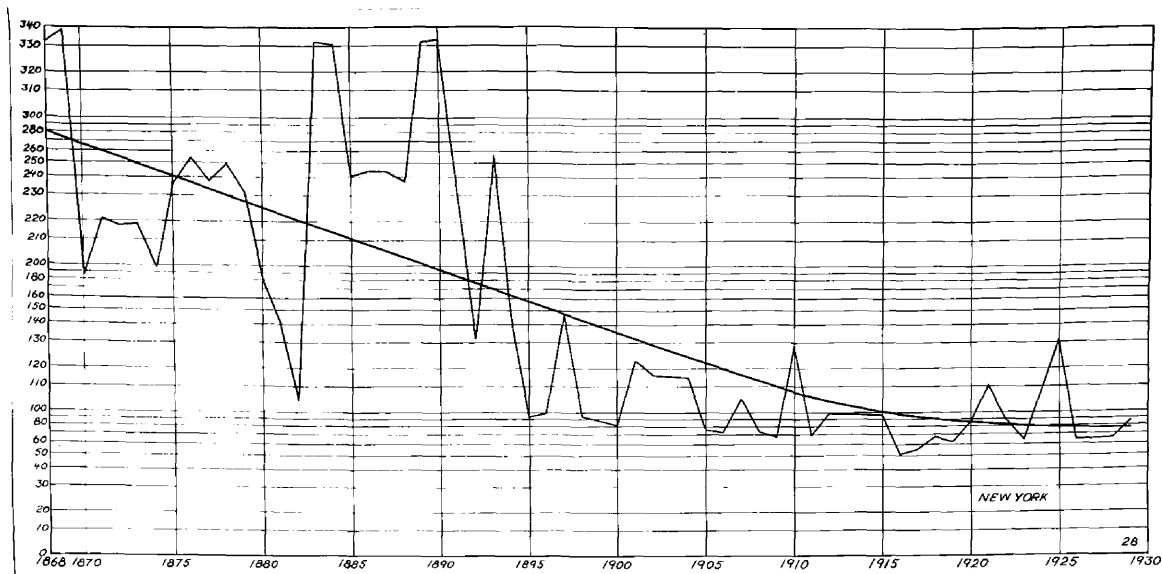
Fig. 20. Purchasing power of grapes in New York, 1868-1929.
St.E. ± 54.41. See Table 24.
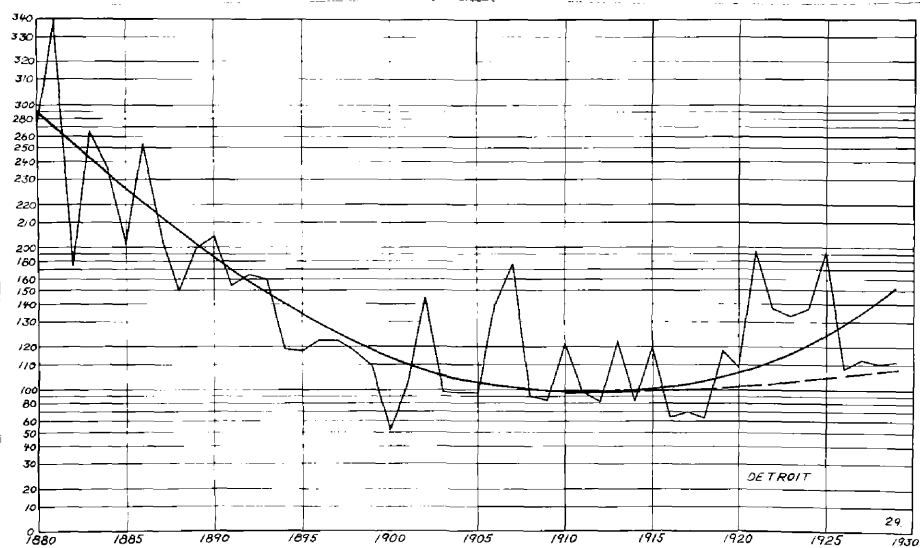
Fig. 21 . Purchasing power of grapes in Detroit, 1880-1929.
St.E. ± 39.55. See Table 24.

grape on both the New York and Detroit markets has been
more marked than that of any other of the deciduous fruits,
being decidedly downward in New York and very decidedly
downward in Detroit. In the latter city, however, there
has been a moderate increase in the purchasing power since
1910, more particularly since 1920.

The short cycle of purchasing power is from 4 to 6
years on the New York market and about 5 years at Detroit.
The long cycle is about 13 and 10 years, respectively, for
the two cities.

The more recent trends of the purchasing power of
grapes in some of the more important grape states are
presented in Figures 22 and 23, based on the prices to
the producer. The California data are for the Vinifera
varieties. Figure 22 shows the changes for Pennsylvania
(92), Arkansas (100), and California (103), and Figure 23
shows the trends in New York (57, 90) and Michigan (56, 95).
Although the Concord is the predominant variety in all
these states, with the exception of California, the
trends of purchasing power show considerable variation.
The trend in California is the only one that has declined
since 1910; the trend has been practically horizontal in
Arkansas, slightly upward in Pennsylvania, and decidedly
upward in New York and Michigan.
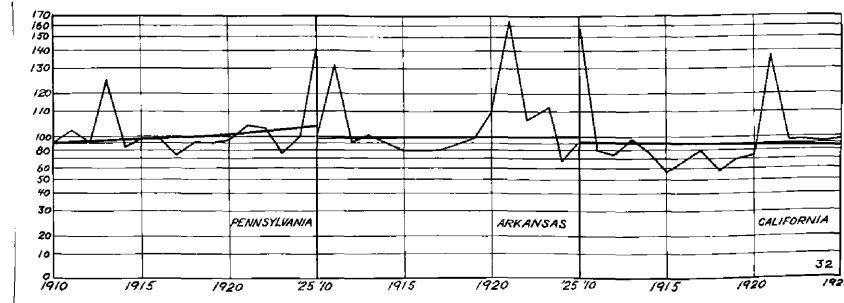
Fig. 22. Recent trends of grape purchasing power in Pennsylvania,
Arkansas, and California. St.E. ±16.55, ±25.57, ±27.26.
See Table 25.
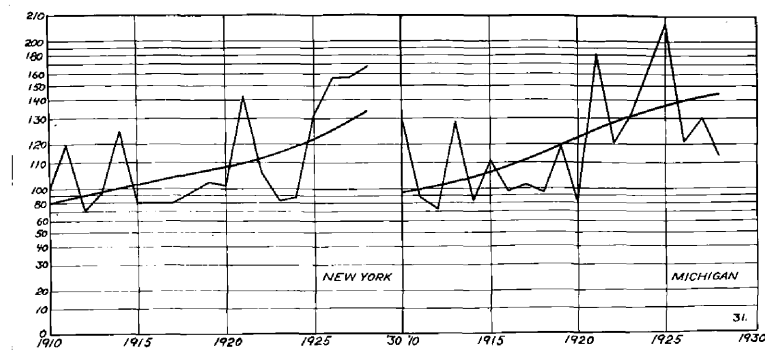
Fig. 23. Recent trends of grape purchasing power in New York
and Michigan. St.E.± 25.55, ±29.88. See Table 25.

ORANGES

Purchasing Power -   The changes in the purchasing power
of Florida oranges (84) on the New York market are shown
in Figure 24 and that of California oranges (84) on the
same market is shown in Figure 25. The trend of the pur-
chasing power of Florida oranges in New York declined
moderately from the years of the freezes in the late
'90s until 1920 and has been horizontal since that time,
as shown by the dotted trend line. Although the California
trend since 1910 has been decidedly upward, its trend since
1920 has been similar to that of the Florida oranges in the
same period.

The short cycle of purchasing power of oranges from
both states has been about 4 years, and the longer cycle
about 10 years in the case of Florida.

GRAPEFRUIT

Purchasing Power -   The changes in the purchasing power
of Florida grapefruit in New York (84) are presented in
Figure 26 and those for California grapefruit, based on
f.o.b. prices, (84) in Figure 27. As in the case of
oranges, if the Florida data only extended back to 1910,
the trend in both states would be fairly comparable.
The effect of the freezes between 1895 and 1900 was more
pronounced on the purchasing power of the Florida grape-
fruit than on that of Florida oranges, as there were
fewer acres of grapefruit in proportion to oranges at
that time than at present.
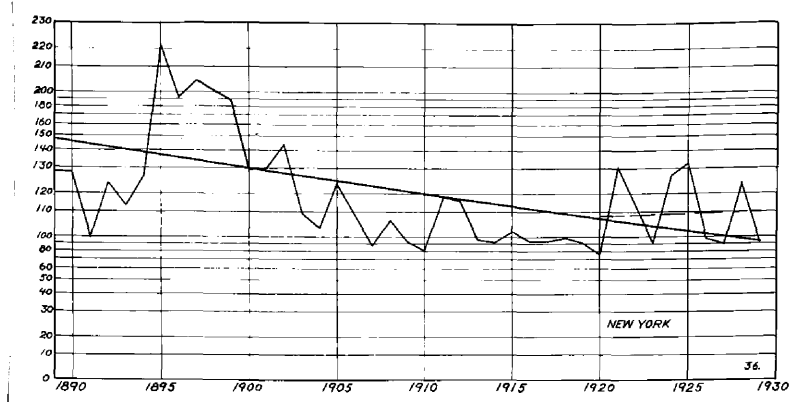
Fig. 24. Purchasing power of Florida oranges in New York, 1889-
1929. St.E. ± 30.08. See Table 26.
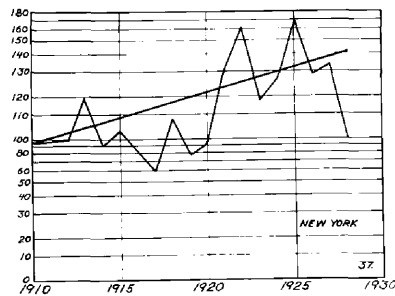
Fig. 25. Purchasing power of California oranges in New York,
1910-1928. St.E. ± 15.80. See Table 26.
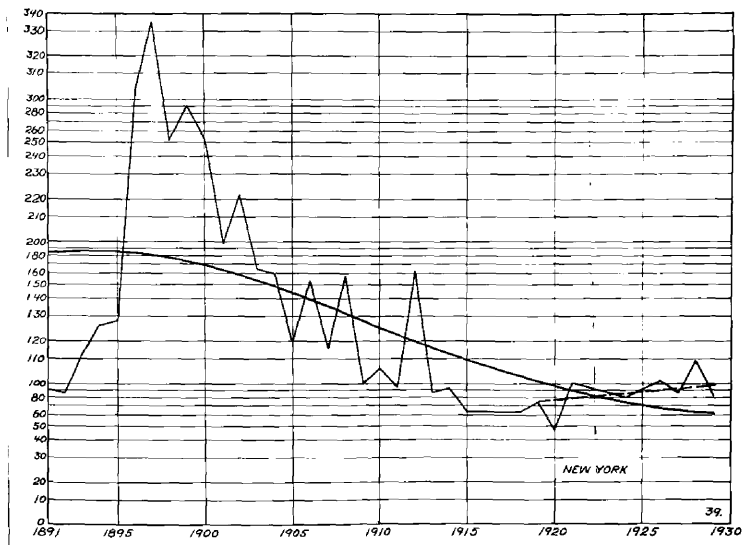
Fig. 26. Purchasing power of Florida grapefruit in New York,
1891-1929. St.E. ±66.09. See Table 27.
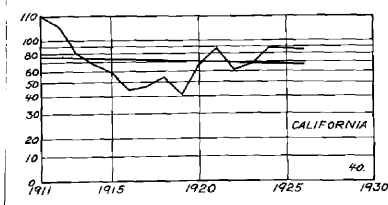
Fig. 27. Purchasing power of California grapefruit, f.o.b.,
1911-1926. St.E. ±20.05. See Table 27.

About the only short cycle that can be noted in
the purchasing power of Florida grapefruit is a tendency
to fluctuate from one year to the next between relatively
higher and lower purchasing power. Neither of the graphs
covers a sufficient number of "normal" years to show a
long cycle of purchasing power.

FOUR AGRICULTURAL COMMODITIES

In order to compare the trends of purchasing power
of the several fruits studied with those of certain other
staple agricultural products, similar data were obtained
for butter, beef cattle, hogs, and wheat. The markets
used are largely those employed in the study of the purchas-
ing power of the fruits, though in some instances the
Chicago prices are substituted for those in Detroit, as
some of the prices in Detroit were not readily available.
Purchasing Power -   The changes in the purchasing power
of butter on the New York and Detroit markets and in
Virginia are shown in Figure 28; those for beef cattle
on the New York, Chicago, and Detroit markets and in
Virginia in Figure 29; those for hogs on the New York
and Chicago markets (combined in Table 2) and in Virginia
in Figure 30; and those for wheat on the New York and
Chicago markets and in Virginia in Figure 31. A summary
of the changes in the purchasing power of these commodities
on the selected markets appears in Table 2.
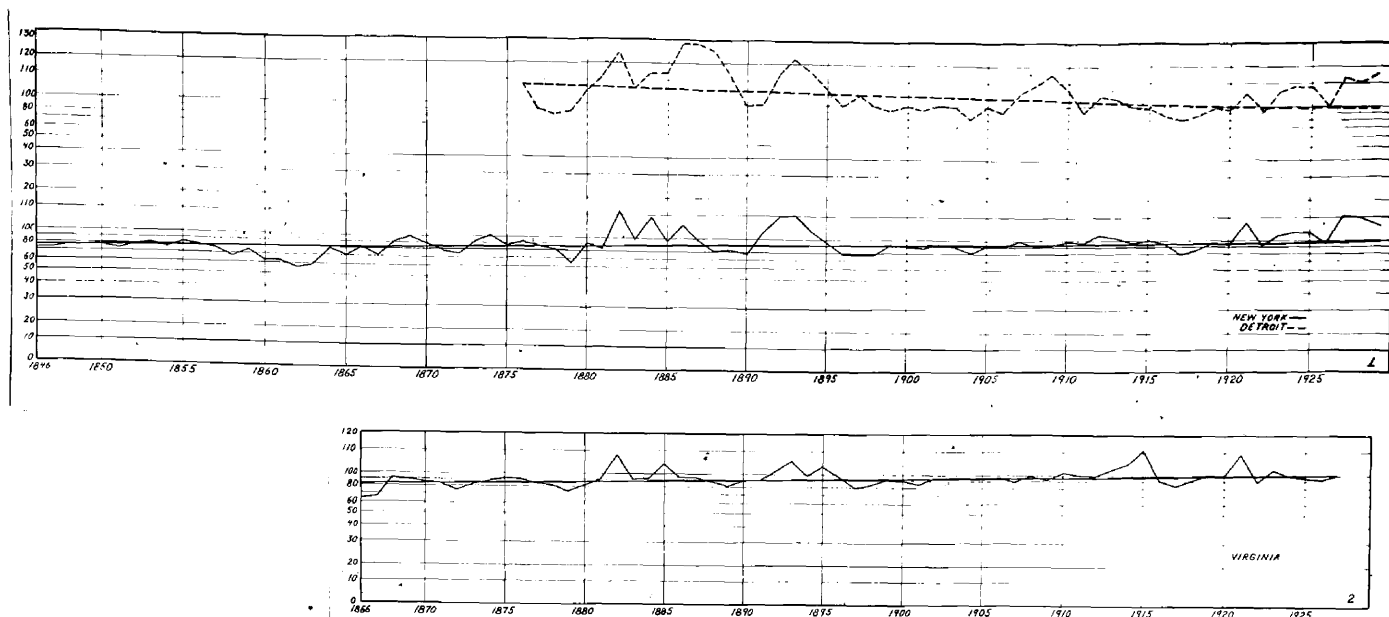
Fig. 28. Purchasing power of butter in New York, Detroit and
Virginia. St.E. ±10.82, ±6.40, ±7.93. See Table 28.
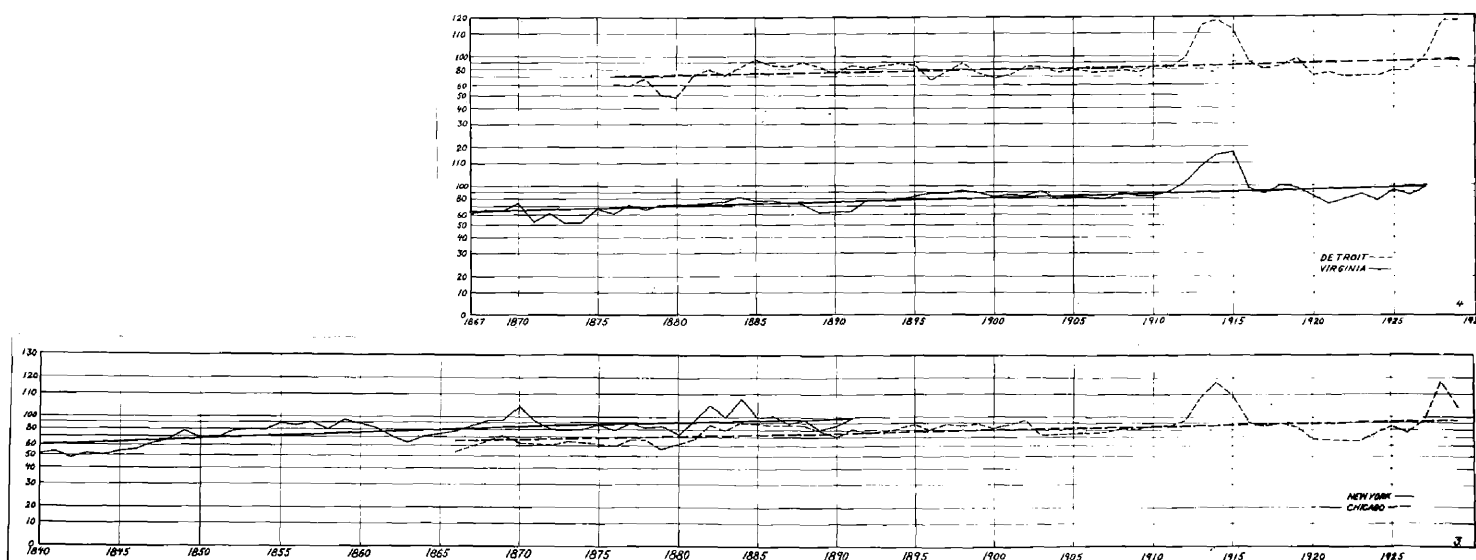
Fig. 29. Purchasing power of beef cattle in New York, Chicago,
Detroit and Virginia. St.E. ±10.10, ±10.77, ±13.42,
±10.15. See Table 29.
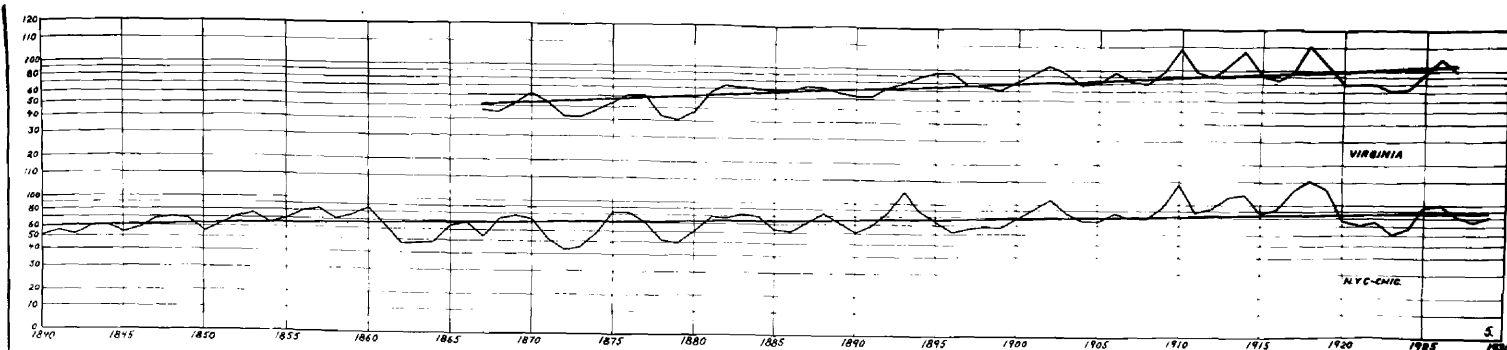
Fig. 30. Purchasing power of hogs in New York-Chicago and
Virginia. St.E. ±8.54, ±12.04. See Table 30.
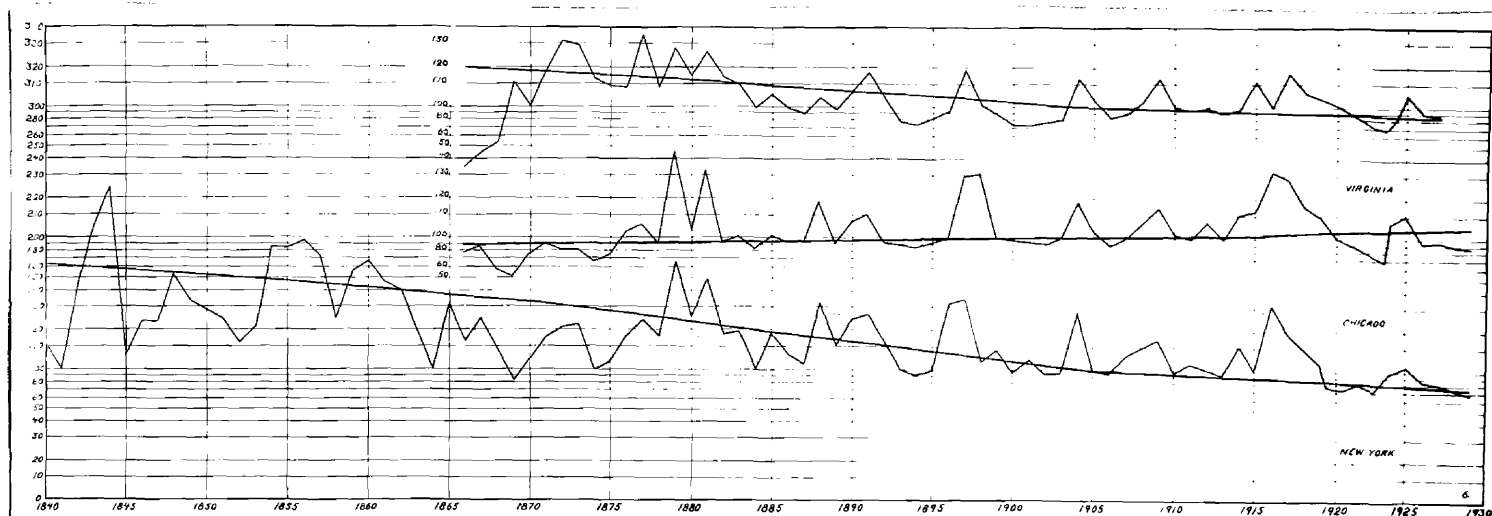
Fig. 31. Purchasing power of wheat in New York, Chicago, and
Virginia. St.E. ±15.56, ±17.23, ±13.04. See Table 31.

Table 2.- The purchasing power trends of butter, beef cattle, hogs, and wheat on selected markets.

Commodity	Market	Source	Years	Trend	St.E.
Butter	New York	(2,77,60)	1846-1929	V.s.up	±10.82
	Detroit	(60)	1876-1929	V.s.down	± 6.40
	Virginia	(72)	1866-1927	V.s.up	± 7.94
Beef cattle	New York	(113)	1840-1891	"	±10.10
	Chicago	(60,73, 110,113)	1866-1929	"	±10.77
	Detroit	(60)	1876-1929	"	±13.42
	Virginia	(71)	1867-1927	"	±10.15
Hogs	N.Y.-Chi.	(60,111, 113)	1840-1929	"	± 8.54
	Virginia	(71)	1867-1927	S.up	±12.04
Wheat	New York	(2,3,91, 105)	1840-1929	S.down	±15.55
	Chicago	104,108)	1866-1929	V.s.up	±17.23
	Virginia	(70)	1867-1927	S.down	±13.04

CHANGES IN COST OF PRODUCTION

Fixed Expenses - A summary of reports in the source materials relating to the selling prices of improved farm land and bearing orchard and vineyard land appears in Table 3. The references included land in the more important fruit growing states, although no data on California or Florida citrus groves are

included. The limits of the values represent the range within which the majority of the sales seem to have been made. As the relationship between the two types of land is the important consideration, rather than the actual prices, the data in the table are not reduced to the 1910-1914 base. The values for the fruit lands are for orchards and vineyards in full bearing.

Table 3.- Selling prices of improved farm land and bearing orchards and vineyards per acre since 1850.

Years	Impr. farm land	Orch.& vine.	Value of trees
1850-1876	$10 - $150 (30-50)*	$150 - $300	$120 - $250
1875-1900	25 - 175 (50-75)	150 - 400	100 - 325
1900-1914	50 - 200 (75-125)	200 - 400	125 - 275
1914-date	75 - 250 (100-150)	250 - 500	150 - 350

* A narrower range, closer to the "average" of most sales.

Assuming a constant rate of interest, which can be done for all practical purposes here, the data in Table 3 confirm the well known fact that the interest on the investment constitutes a larger fixed expense today than in 1850. The rate of increase in the value of improved farm land has been greater than that of bearing orchards and vineyards. The present selling price of improved farm land, using the narrower ranges, is about 300 per

cent of the 1850 price, while that of the orchards and
vineyards is about 166 per cent of the 1850 price.

If the capital invested in the trees is to be
conserved, an amount equal to their depreciation must
be set aside from year to year. This amount would
probably vary from two to eight per cent of the value
of the trees, according to the kind of fruit and the
length of profitable life assumed for each particular
region under the varying cultivation and growing con-
ditions. Using the difference between the value of
improved farm land and the value of bearing orchards
or vineyards as a measure of the value of the trees
or vines, Table 3 indicates that the value of the trees
and vines today is from 125 to 140 per cent of their 1850
value. The depreciation item has thus increased corres-
pondingly for this second part of the investment.

With the increase in the size or number of build-
ings used for orchard or vineyard purposes, such as
packing sheds, tool and equipment shelters, and storage
houses this third part of the investment has increased.
The investment in equipment has been increased by the
addition of sprayers, some spray mixing equipment, dust-
ing machines, graders, sizers, and other packing house
machinery, and such other tools and equipment as the
greater mechanization of fruit growing has demanded.
The interest charges on these two parts of the invest-
ment have likewise increased considerably.

A charge of perhaps three per cent on the buildings and ten per cent on the equipment must be made to cover the depreciation, another fixed charge that has increased in proportion to the investment in both.

Taxes paid by the **fruit** grower, like those of other people, have increased several fold since 1850, but because of the wide variation among the levies of different states, it is difficult to determine the extent of the increase in this item of the fixed expenses.

In so far as the buildings and equipment are insured against various forms of loss or damage, this item has also increased. The insurance of crops from year to year has been growing in popularity in some fruit areas, and though it might be considered a fluctuating cost, it can be mentioned here.

Water fees, rents, or taxes must be added to the fixed costs of fruit growers in many of the western areas. Variable Expenses — Labor, materials, and marketing expenses constitute the bulk of the variable expenses requiring a cash outlay each year. The changes in the labor item include an increase in both the cost of man and team (or tractor) labor per hour and the number of hours of labor employed per acre in production.

The changes in the cost of team (or tractor) labor per hour during the years includedhere are difficult to determine, but the cost is probably more than in 1850.

The changes in the level of farm wages since 1866, as shown in Table 4, are perhaps as close a measure as is available of the changes in the cost of orchard and vineyard labor, especially as it is in terms of price indices, rather than money. It appears from Table 4 that the level of farm wages is now approximately 300 per cent of the 1866 level in terms of money, although in terms of goods the increase is slightly less than 100 per cent.

Table 4.- Index numbers of farm wages, 1866-1929. (112).
1910-1914 equals 100

Year	Index	Year	Index
1866	55	1902	76
1869	54	1906	92
1874-1875	59	1909	96
		1910	97
1877-1879	56	1911	97
1879-1880	59	1912	101
1880-1881	62	1913	104
1881-1882	65	1914	101
		1915	102
1884-1885	65	1916	112
		1917	140
1887-1888	66	1918	176
		1919	206
1889-1890	66	1920	239
		1921	150
1891-1892	67	1922	146
		1923	166
1893	67	1924	166
1894	61	1925	168
1895	62	1926	171
		1927	170
1898	65	1928	169
1899	68	1929	169

Because production methods vary considerably in different regions, it is only possible to say that the number of man hours used in production has increased appreciably since 1850 and that this increase when multiplied by the increases in wages per hour makes a considerable increase in the variable costs of production.

The material item of the variable expenses includes such items as fertilizer, spray materials, barrels or other containers, and miscellaneous supplies. When reported fertilizer prices are summarized and reduced to the basis of the 1910-1914 dollar, it appears that in terms of goods fertilizer prices have declined from about $45 per ton in eastern markets in 1850 to $30 in 1925. The increase in the amount of fertilizer used per acre would at least partially offset the decline in the cost per unit. The cost changes of the spray materials, containers, and supplies are rather hard to determine. About as satisfactory a method as any, perhaps, is to consider that their changes have been comparable to those of the general price level, and thus in terms of goods to assume that they have been rather stable in value per unit.

The quantity of materials and labor now used in spraying has increased until, together, they now constitute the largest single item of the variable expenses, probably

increasing those costs by 30 to 50 per cent over the
time before spraying was practiced. The tendency of the
spraying program to increase in cost has continued to
the present time.

Changes in marketing costs since 1850 have been
of various kinds. The greater distances fruit is now
shipped, the more complex channels through which it
reaches the consumer, the more exacting requirements
of size and grade, and other factors are involved. In
spite of increased efficiency in the marketing process
there seems to be more evidence that the cost of market-
ing, at least in proportion to the price received by the
grower, has increased during the past several decades
than there is to the contrary.

Briefly then, there has been an increase in the
cost of production of the fruits included in this study,
when considered as a group. The cost of apples has in-
creased, on the basis of this study, from 50 to 100 per
cent since the years from 1850 to 1875, and the cost of peaches
has increased about 100 per cent. Sufficient data were not
obtained in this study to permit a satisfactory estimate
of the changes in the costs of production of the other
selected fruits, although it is reasonable to conclude
from the definite increases that have occurred in the
size of a number of the cost items that the total pro-
duction costs of these fruits have also appreciably in-
creased since 1850.

CHANGES IN PURCHASING POWER

Changes in Fruit Supply -   The purchasing power of
a fruit depends upon its selling price and the prices
of the goods for which it is exchanged. The causes
of the changes in the general price level are manifold
and do not lie within the province of this study. Some
of the changes that have occurred in the two underlying
factors which determine the selling prices of the fruits,
the other side of the purchasing power equation,may be
mentioned.

The changes in the per capita production of apples,
pears, peaches, oranges, strawberries, cantaloupes, water-
melons, and imports of bananas for a varying number of
years are presented graphically in Figure 32 a, b, c.
The data for all of these fruits are for the commercial
production, with the exception of apples, pears, and
peaches, which are for total production. The sources
of the data are shown in the footnote to Table 15 in
the Appendix. The total production of nine important
fruits, taken from the Census Reports, are presented
in Table 5. It must be noted that single years are
frequently not representative of usual crops, as for
example, the peach crop of 1900, but Table 5 will show
in a general way the increase in production that has
occurred and the decline in the per capita production
of the nine fruits as a group.
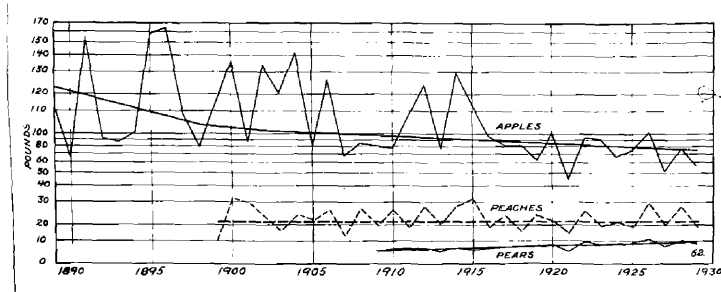
a
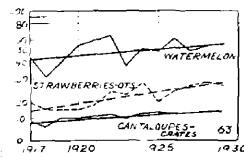
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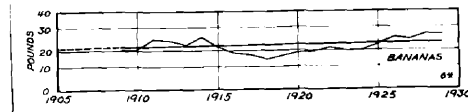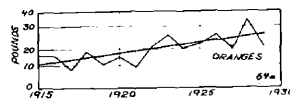
c

Fig. 32 a,b,c. Per capita production of apples, pears, peaches,
    strawberries, cantaloupes, watermelons, and oranges and
    imports of bananas. St.E. 25.50, 10.14, 13.27, 1.90,
    5.47, 8.62, 4.84, 254. See Table 15.

Table 5.- The total production of nine fruits in the United
States for certain years, expressed in terms of
50 pound bushels.

Year	Apples	Peaches	Pears	Grapes
1890	143,105,689	36,367,747	3,064,375	20,955,480
1900	175,397,600	15,432,603	6,625,417	26,019,880
1910	145,412,318	35,470,276	8,840,733	45,301,320
1920	136,560,997	50,686,082	14,204,265	70,336,800
1930	139,754,000	45,990,000	20,903,000	80,896,680

	Plums	Cherries	Apricots	Oranges
1890	2,554,392	1,476,719	1,001,482	6,588,000
1900	8,764,032	2,873,499	2,643,128	9,250,500
1910	15,480,170	4,126,099	4,150,263	33,795,000
1920	19,983,942	3,945,749	6,130,086	35,085,000
1930		2,470,760	7,800,000	50,608,500

	Grapefruit	Total	Total lbs. per capita of the nine fruits
1890	15,000	216,128,884	172
1900	46,500	247,052,659	162
1910	1,783,500	294,359,679	160
1920	8,692,500	344,725,421	164
1930	13,978,500	381,493,382	155

A comparison of the changes in the per capita production
of the fruits included in Figure 32 a,b,c with those in the
purchasing power of the same fruits on the New York market

confirms the fact that their prices are lower in the
years of larger yields, and that the purchasing power
is likely to be lower in those years. As crops vary
somewhat in the extent to which changes in production
in one area affect prices in another region, there is
not always an exact relationship between the production
and the price of a single fruit for a particular area
in any given year. Not only are the prices per sales
unit generally lower in a year of a heavy crop, but
Warren, Pearson, and others (115, 116) have found that
the spread between the price received by the grower and
the price paid by the consumer is wider in years of greater
production and lower prices. This increase in the share
of the consumer's dollar absorbed in the marketing process
means a correspondingly lower price for the producer. The
same authors also found that "The spread between the
Georgia and New York prices of Georgia peaches for seven
large and seven small crops were respectively 79 and 61
cents." (114). They also found the same thing to be true
of apples (115), grapes (85), and other agricultural
commodities (115). They further discovered (115) that
this greater proportional cost of marketing was more pro-
nounced in the surplus producing states than in the deficit
states, making it of particular importance to the majority
of commercial growers. The same investigators have also

determined to what extent changes in the size of crop
produce changes in prices for certain crops. Some of
their data are presented in Table 6.

Table 6.- Changes in price of three fruits due to changes
in production. (After Warren, Pearson, et al.)

Fruit	Source	Production area	% Change in production	% Change in price
Apples	(115)	U. S.	-20	+17
"	"	"	+20	-12
Grapes	(85)	W.N.Y.	-40	+36
"	"	"	+40	-20
Peaches	(114)	U. S.	-20	+ 7
"	"	"	+20	- 5
"	"	Ga.	-20	+ 9
"	"	"	+20	- 7

The fact that increases in the crops do not depress
the price to the same degree that proportional decreases
raise the price gives added weight to the statement by
Hauck (35) in an Ohio study that "The number of bushels
sold exerted more influence than the price in determining
the gross income. Gross income was not always proportional
to profits." Rogers (76) in a Michigan study emphasizes
the same point. Apparently then, within rather broad limits
it is more desirable to have somewhat larger yields selling
at a lower price than correspondingly lower yields selling

at a higher price. For example, using the previously
mentioned grape data:

A normal crop of 100 bushels at $2.00 = $200.00

A 40% increased yield
and a 20% lower price, 140 bu. at 1.60 = 224.00

A 40% decreased yield
and a 36% higher price, 60 bu. at 2.72 = 163.20

Scoville (81) concluded, from a study on the
changes in the month to month prices of apples, that
"The size of the apple crop has little or no effect on
the course that apple prices take throughout the season.
April's price has averaged (for nine different U. S. crops)
43 per cent more than October's. There may be a slightly
greater risk than usual in storing apples in very short
crop years when the price is high in the fall."

The production of competing fruits (or their
importation) as well as the production of a particular
fruit also affects the price and thus the purchasing power
of the fruit. Strawberries have virtually replaced fresh
sour cherries in the last 100 years, and peaches have in
a large degree replaced plums within more recent times.
The competition is not only between the fruits during the
fresh season of both, or of one another, but also between
the fresh fruit of one and the canned, dried, or otherwise
processed form of the other, or between processed forms

of both. The exact degree of such competition is difficult to determine, and the only statement that can be made here is that a large crop of a competing fruit is likely also to affect the price of the fruit with which it competes. Peaches, early apples, cantaloupes, and watermelons may be mentioned as examples of this type of competition.

Competition not only exists between fruits (including melons in this sense as fruits) but also between fruits and certain vegetables to a lesser extent. To the extent that salad vegetables are used instead of the relatively more expensive fruits for salad purposes they add, in effect, to the supply of the fruits used for salads and so affect fruit prices.

The changes in the purchasing power of fruits whose per capita production are presented in Figure 32 a, b, c correspond fairly closely to what might be expected with the changes in production shown there, with the exception of peaches. Despite the horizontal per capita trend of peach production since 1889, the purchasing power of peaches on the New York and Detroit markets has continued to decline since that time. It appears that peaches suffer keener competition during their fresh season from other fruits than do apples, pears, and oranges.

The short and long cycles in apple production,
4 and 14 years respectively, described by Davis and
others (28), agree very closely with the short and
long cycles of apple purchasing power shown in Figures
1 to 5 inclusive. The fact that there are both surplus
and deficit production areas, and that different fruits
as well as the same fruit in different areas do not
respond in price changes exactly with changes in pro-
duction for the country at large, is responsible for
the differences in the degree of correlation of price
and production noted in a comparison of the variations
in the purchasing power (price) of a fruit on different
markets during the same year.

Changes in Fruit Demand - The factors influencing the
demand for a fruit or for fruits in any one year (27, 32,
38) are merely the status at that time of all the factors
influencing demand over a longer period of time. With
the growth of cities, the increased number of apartment
dwellers, and the nearly continuous supplies of some
kinds of fruits the number of pounds of fruit bought by
the housewife at any time has declined considerably since
1850. Along with the smaller sized purchases has developed
an increasing demand for higher and more uniform quality,
both within any one purchase and from season to season, a
reflection, perhaps, of the growing preference for uniform,

trademarked, nationally advertised staple groceries.
Then too, the percentage of home canned fruits consumed
in proportion to the commercially canned fruits is
declining.

The longer season during which a fruit is now
found on the city markets in the fresh state, due to
the progress in perishable freight service, intensifies
the competition between fruits. The flow of fruits from
distant areas tends to hold down the price of the locally
produced fruits at the start of the local season, and the
latter part of the local fruit to reach the market faces
the competition of another distant area then reaching the
full height of its own season. The demand thus becomes
more elastic for any one of the competing fruits or for
the locally produced fruit.

PURCHASING POWER CYCLES

Although no effort was made to fit mathematically
cyclical trend lines to the purchasing power graphs of
the fruits on the New York, Detroit, and other markets
shown in Figures 1 to 27, inspection shows that they are
in general characterized by both long and shorter cycles.
Perhaps the term "cycle" has been used and abused so fre-
quently in recent years that it is not wholly satisfactory
in this instance, as it connotes to some an inevitableness
or excessive determinism in itself, regardless of causes
or circumstances. Such a concept is not intended here.

If there are causes which, operating together and varying
in their expression from year to year, produce rather
regular recurrences of peaks and troughs of purchasing
power, as appear in the fruit purchasing power graphs of
this study; or if these recurrences are the results of the
operation of the laws of chance in the range of their
possibilities, the result is the same; peaks and troughs
of purchasing power have occurred with fair regularity
in the purchasing power of the fruits in this study as a
group. This is the sense in which the term "cycle" is used
in this study:only a descriptive term for these recurrences.

Although changes in demand influence price, and thus
purchasing power, as well as changes in supply, a comparison
of the changes in the purchasing power of the fruits on
the markets included in this study with recorded changes
in the production of the particular fruits from year to
year creates the distinct impression that changes in
supply exert a greater influence upon the purchasing
power of fruits from year to year than changes in demand.
It seems, therefore, more reasonable to believe that
cycles of purchasing power are strongly influenced by
changes in production than that they are only due to
the operations of chance. As there are both internal
and environmental factors which influence fruitfulness
from year to year (31, 87), the joint operation of these

factors affects the size of the crops from year to year and thus to a considerable degree is responsible for the short cycles or recurrences of fruit purchasing power.

The long cycles are generally assumed to be due to the fact that a period of good prices for several years results in increased plantings. The length of the cycle then becomes the length of time necessary for these trees to come into bearing sufficiently to cause a decline in prices to start again. The acreage pulled up or abandoned in the comparable series of years of declining prices is not usually as great as the acreage of new plantings made in a series of years of rising prices. This may be accounted for by the assumption that there may be an increase in the demand with passing years, or the more vital one that the grower naturally hesitates to discard the investment in time and money that a young bearing orchard or vine-yard represents. Consequently, there is a net increase in acreage until the total production reaches a volume that depresses the price sufficiently to bring about a more vigorous culling out of the least profitable plantings.

The lengths of the short and longer cycles of purchasing power of the fruits and markets included in the study are shown in Table 7.

Table 7.- The short and long cycles of fruit purchasing power of certain fruits on selected markets.

Fruit	Market	Cycles	
		Short	Long
Apples	New York	$4\frac{1}{2}$ yrs.	$14\frac{1}{2}$ yrs.
	Detroit	$4\frac{1}{2}$ "	$14\frac{1}{2}$ "
	Boston	$4\frac{1}{2}$ "	? "
	Jonesboro	$3\frac{1}{2}$ "	$14\frac{1}{2}$ "
	Virginia	$4\frac{1}{2}$ "	$14\frac{1}{2}$ "
Pears	New York	4-5 "	$13\frac{1}{2}$ "
	Detroit	3-4 "	$10\frac{1}{2}$ "
Peaches	New York	4-5 "	$9\frac{1}{2}$ "
	Detroit	$4\frac{1}{2}$ "	$9\frac{1}{2}$ "
Plums	New York	$5\frac{1}{2}$ "	$12\frac{1}{2}$ "
	Detroit	$5\frac{1}{2}$ "	$11\frac{1}{2}$ "
Cherries	New York	$4\frac{1}{2}$ "	$10\frac{1}{2}$ "
	Detroit	$4\frac{1}{2}$ "	$9\frac{1}{2}$ "
Grapes	New York	4-6 "	13 "
	Detroit	5 "	10 "
Oranges Fla.	New York	4- "	10 "
Cal.	New York	4- "	?
Grapefruit Fla.	New York	Alternates	?
Cal.	f. o. b.	"	?

The plus and minus marks indicate that, although a fitted cyclical trend would show a definite cycle in both instances, many of the cycles are not perfectly uniform and vary from the stated figure by a year or so one way or the other. The majority of the cycles are as stated. The question marks in the case of the citrus fruits are due to the fact that the period of years included is too short to establish the length of the long cycles; the same mark is used in the case of apples in Boston to show that there did not seem to be a more or less regular cycle..

Two questions arise from an inspection of Table 7. Do the peaks of purchasing power of a particular fruit usually occur in the same year in the different production areas of that fruit, and do the peaks of purchasing power of the different fruits usually occur in the same year in any given area?

Table 8 shows the frequency with which the purchasing power peaks of some of the fruits occurred simultaneously on both the New York and Detroit markets since 1880.

Table 8.- The number of times that peaks of purchasing
power of certain fruits occurred simultaneously
on the New York and Detroit markets since 1880.

Fruit	No. of peaks on both markets	Total No. of peaks	Percentage
Apples	4	16	25
Pears	3	19	15.6
Peaches	6	16	37.5
Plums	7	16	43.7
Cherries	0	10	0
Grapes	6	16	37.5

The years in which the purchasing power of at least
two of the fruits listed in Table 8 were at a peak at the
same time on either the New York or Detroit markets since
1880 are shown in Table 9.

Table 9.- The years in which the purchasing power of at
least two fruits was at a peak simultaneously
on either the New York or Detroit markets.

Year	New York Fruits at a peak	Year	Detroit Fruits at a peak
1881	Apples, plums, grapes	1881	Apples, pears, peaches, plums
		1884	Pears, plums
1885	Apples, peaches	1885	Peaches, cherries
1886	Pears, plums, grapes		
1888	Pears, plums		
1889	Apples, grapes		
1890	Peaches, plums	1890	Apples, pears, grapes
1893	Apples, grapes		
1895	Peaches, plums		
1896	Pears, cherries	1897	Apples, grapes
1899	Peaches, plums		
		1902	Pears, plums, grapes
1903	Peaches, plums	1903	Peaches, cherries
1904	Cherries, grapes		
1905	Apples, pears	1905	Apples, pears
1907	Peaches, plums	1907	Peaches, plums
1909	Apples, pears		
1910	Plums, grapes	1910	Apples, peaches, grapes
		1912	Plums, cherries
		1913	Pears, peaches, grapes
1915	Pears, cherries, grapes		
		1919	Apples, pears
1921	Apples, pears peaches, grapes	1921	Pears, cherries, peaches, grapes
1925	Peaches, cherries, grapes.	1925	Peaches, grapes
		1927	Apples, pears, plums
1927	Apples, plums		

It appears from Table 9 that a grower of the six kinds of fruit mentioned in the table and located in either the middle Atlantic or the north central states would have had shorter cycles in his income than a grower of only one fruit, as there were 20 years in this period of 50 in which the purchasing power of two or more fruits was at a peak together on the New York market, and 16 on the Detroit market. There would have been about 12 cycles in the 50 years for any one of the fruits on either market.

DIVERSIFICATION

An inspection of Tables 8 and 9 suggests the desirability of diversification. There are many fruit areas in the United States so preeminently adapted to only one or two fruits that such specialization is the only practical production plan, but there are other areas of the country suitable to more kinds of fruit. In those areas the possibilities of diversified fruit growing are worthy of some attention. Of course the different fruits have varying soil and climatic preferences, but as far as the soil is concerned, a block of a hundred acres or more is more likely to be variable than uniform. Such diversification also involves a more complex orchard management problem. When the kinds of fruit that will grow in a particular locality have been determined, there

remain two other problems: (1) the estimation of the smallest acreage of each of the fruits that can be operated economically as a unit and (2) the relative acreage to be devoted to each of the fruits. Considering these two factors and the amount of capital available it should be possible to combine such multiples of the minimum acreages of each of the fruits as would provide the desired ratios with the amount of capital fixing the total size of the enterprise. Although over a sufficiently long period of years the average income of the grower of a single fruit might be the same as that of the grower of several fruits, the more frequent recurrence of years in which the profitableness of two or more fruits were especially high would reduce the risk of crop failures for any given year and contribute considerably to a greater uniformity of income from year to year.

PURCHASING POWER TRENDS

It has been mentioned that the production of a particular fruit seemed to be the most influential single factor in the determination of the selling price, and the selling price in turn is one of the two factors in the determination of the purchasing power. As the production of competing fruits and vegetables is another factor influencing the selling prices, it also influences the

purchasing power, although to a lesser extent in both of these instances. As the fruits were not essential war materials, their prices rose more slowly during the war years than the general price level with the consequent fall in their purchasing power.

Figures 33 and 34 show the changes in the purchasing power of the non-citrus fruits on the New York market, Figures 35 and 36 show the changes in the purchasing power for the same fruits on the Detroit market, and Figures 37 and 38 show the changes in the purchasing power of the Florida and California citrus fruits. In order to compare the changes in the purchasing power of apples, pears, peaches, and grapes since 1910 in some of the leading production states, a descriptive summary is presented in Table 10.
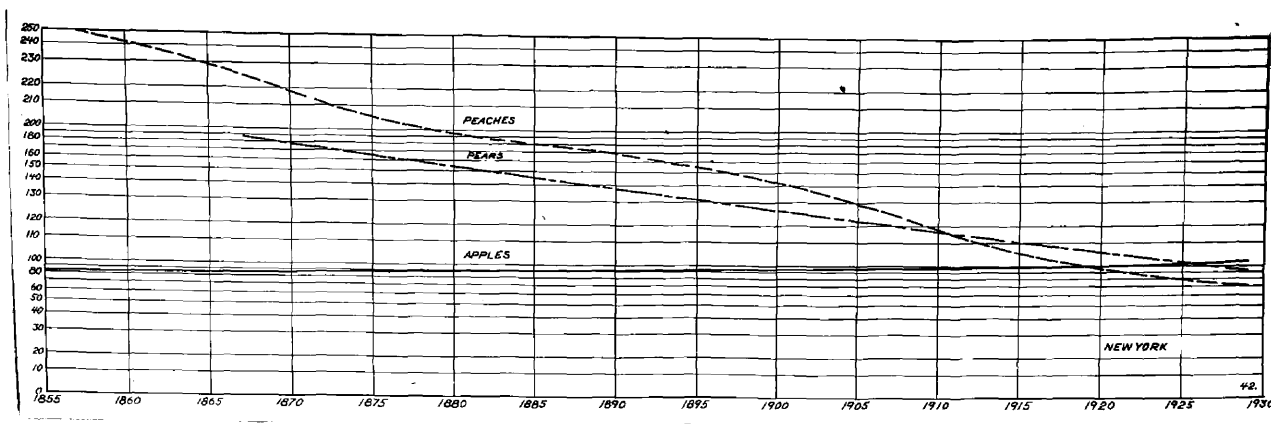
Fig. 33. Trends of purchasing power of apples, pears, and peaches in New York. See Tables 16, 18, and 20.
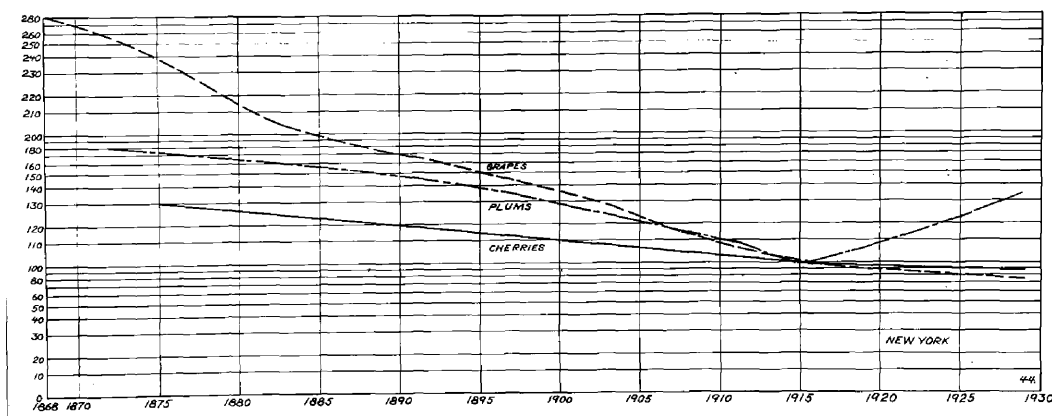
Fig. 34. Trends of purchasing power of cherries, plums, and grapes in New York. See Tables 23, 22, and 24.
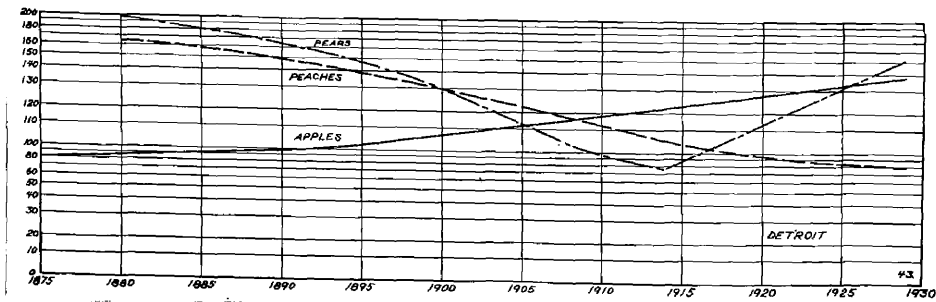
Fig. 35. Trends of purchasing power of apples, pears, and
peaches in Detroit. See Tables 16, 18, and 20.
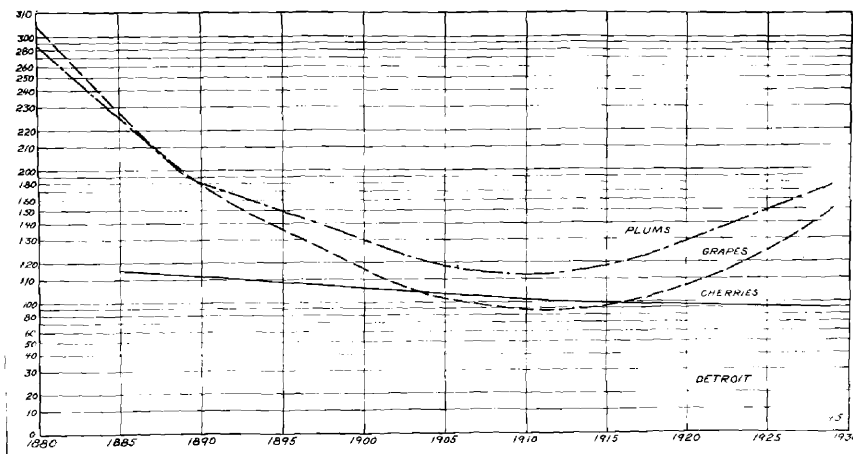
Fig. 36. Trends of purchasing power of plums, cherries, and
grapes in Detroit. See Tables 22, 23, and 24.
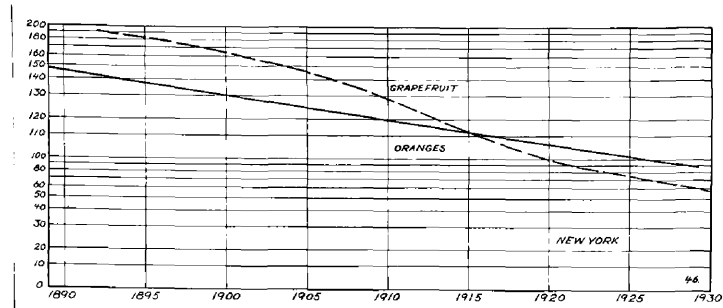
Fig. 37. Trends of purchasing power of Florida oranges and
         grapefruit in New York. See Tables 26 and 27.
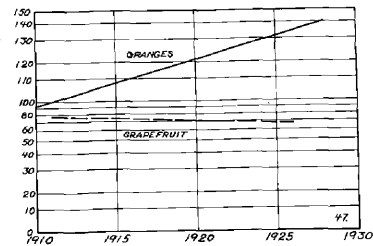
Fig. 38. Trends of purchasing power of California oranges in
         New York and grapefruit f.o.b. See Tables 26 and 27.

Table 10.- The trends of purchasing power of apples, pears, peaches, and grapes in certain states since 1910.

Fruit	State	Years	Trend
Apples	New York	1910-1928	Decidedly up
	Michigan	" "	Slightly up
	Virginia	" "	Decidedly up
	Colorado	" "	Slightly down
	Missouri	1910-1925	Moderately up
	Washington	1910-1928	Moderately up
Pears	New York	1910-1928	Decidedly up
	Michigan	" "	Slightly down
	California	1910-1925	Horizontal
Peaches	Georgia	1910-1929	Horizontal
	N. Carolina	" "	Very slightly up
	Arkansas	1910-1925	Horizontal
	Illinois	" "	Moderately up
	California	" "	Moderately down
	New York	1910-1928	Slightly down
	Michigan	" "	Slightly down
Grapes	Penn.	1910-1925	Slightly up
	Arkansas	" "	Horizontal
	California	" "	Horizontal
	New York	1910-1928	Decidedly up
	Michigan.	" "	Very decidedly up

Although the trend lines of the non-citrus fruits on the New York market begin prior to 1880, a comparison of the

changes in fruit purchasing power on the New York and Detroit markets must be on the 1880 to 1929 basis to be more comparable. Table 11 shows the purchasing power index of the non-citrus fruits on the New York market compared with similar data on the Detroit market in 1880 and 1929. The purchasing power index of the fruits on the New York market are also given for the year in which the respective trend lines start. The purchasing power indices are read from the trend lines rather than from the tables for the three specific years.

Table 11.- The purchasing power indices of certain fruits on the New York and Detroit markets in selected years.

Fruit	Market	Year	Index	1880	1929	1929 % of 1880
Apples	New York	1855	82	89	102	114
	Detroit			86	138	160
Pears	New York	1867	187	154	92	60
	Detroit			198 ('14)	150 78	76
Peaches	New York	1857	250	195	70	36
	Detroit			165	80	48
Plums	New York	1872	180	148 ('15)	134 100	90
	Detroit			285 ('10)	175 113	61
Cherries	New York	1875	130	126	89	71
	Detroit	(1885)--|--→		116	90	77
Grapes	New York	1868	280	197	75	33
	Detroit			304 ('11)	150 88	49

Although the graphs of purchasing power of the four agricultural staples begin prior to 1880 on both markets (in some cases the Chicago market is substituted for the Detroit market), the data in Table 12 include only the 50 year period from 1880 to 1929 in order that the changes may be compared more exactly with the changes in the fruits listed in Table 11. The values of the indices are likewise read from the trend lines rather than from the tables from which the graphs are constructed.

Table 12.- The purchasing power indices of four agricultural commodities on certain markets in 1880 and 1929.

Commodity	Market	1880	1929	1929 % of 1880
Butter	New York	87	98	113
	Detroit	108	98	91
	Virginia	97	100 ('27)	103
Beef cattle	(N.Y.)-Chi*	70	95	136
	Detroit	72	90	125
	Virginia	70	98	140
Hogs	N.Y.-Chi.	73	88	119
	Virginia	62	102 ('27)	164
Wheat	New York	123	75	61
	Chicago	92	105	114
	Virginia	112	84 ('27)	75

* The Chicago trend used, but the slope is the same as that for New York, and the percentage change on the New York market is very close to that on the Chicago market.

Generally speaking, the purchasing power of apples in 1929 was about 135 per cent of the 1880 value, pears about 65 per cent of the 1880 value, peaches about 40 per cent of the 1880 value, plums and cherries about 75 per cent of the 1880 value, and grapes about 40 per cent of the 1880 value of purchasing power. On the same basis the purchasing power of butter in 1929 was about the same as in 1880, beef cattle about 150 per cent of the 1880 value, hogs about 140 per cent of the 1880 value, and wheat about 80 per cent of the 1880 value or purchasing power.

UNIT MARGIN OF PROFIT

With the changes in the cost of production and purchasing power of the selected fruits presented to the extent that the source materials used in the study permit, attention may be directed to the changes in the margin of profit per sales unit of the fruits as a group. An increasing cost per unit in terms of goods and a decreasing purchasing power per unit means a decrease in the unit margin of profit. The margin of profit per unit also decreases when the cost of production increases at a greater rate than the purchasing power or when the purchasing power declines at a more rapid rate than the cost of production. Conversely, the margin of profit per unit increases when the opposite relationships

prevail. Because there were data available in sufficient quantity only in the case of apples and peaches to estimate the changes in the cost of production, it is possible to compare the changes in the margin of profit per unit of only these two fruits in a specific way. In so far as the New York market may be representative of the conditions of the middle Atlantic states and Detroit representative of the north central states, the comparison may be valid for those areas. Table 13 shows the changes in the cost of production and purchasing power in these areas and markets, using the two period of 1850 to 1875 and 1914 to 1929 for the comparisons.

Table 13.- Changes in the cost of production and purchasing power of apples and peaches.

Fruit	Area	Cost of production		Percentage
		1850-1875	1914-1929	
Apples	U. S.	$ .85 bbl	$1.27 to $1.91	150-225
Peaches	U. S.	.30-34 bu.	.54 to .89	180-232

Fruit	Market	Purchasing Power				Percentage
		Year	Index*	Year	Index*	
Apples	N. Y. C.	1855	82	1929	102	124
	Detroit	1875	80	1929	138	171
Peaches	N. Y. C.	1857	250	1929	70	28
	Detroit	1880	165	1929	80	48

* Index value read from the trend lines in Figures 33 and 35.

The margin of profit per unit of apples has
declined somewhat during the years included in Table 13,
as the present cost of production is now from 150 to
225 per cent of the 1850-1875 cost while its purchasing
power has increased to a value from about 125 to 175
per cent of its earlier value. The unit margin of pro-
fit of peaches has declined very much more than that of
apples, as the present cost of production ranges from
180 to 230 per cent of its 1850-1875 cost while its pur-
chasing power has declined to a value of about 25 to 50
per cent of its value in the earlier period. In the case
of both fruits these data are to be considered as reflect-
ing general conditions and of course not applying exactly
to any specific section or orchard. As far as the other
fruits included in the study are concerned, only the
general impression gained from looking through the
source materials can be given here. There is much more
evidence of a decline in the unit margin of profit of the
other fruits than of an increase, though it is impossible
to say here which fruit has suffered the greatest decline ,
and which the next greatest. This does not mean that
there is now no margin of profit per unit of fruit for the
fruits individually or collectively in the country at
large over a period of years, but only that the margin of
unit profits is not as wide as it was 50 and more years ago.

DISCUSSION

A discussion of the changes that have occurred
in the profitableness of growing some of the more
commercially important fruits of the United States during
the period of years included in this study must necessarily
be in general terms. It involves some factors that can
be traced with considerable accuracy and some that can
only be roughly estimated, and it depends upon the
source materials used. Changes in the total production
of the fruits as well as of industry must be considered
as well as the unit margins of profits. The selling
price of an acre of fruit is calculated on the same
basis as that of any other competitive enterprise -
its capacity to yield a profit over a period of years.
The changes that have occurred in the selling prices of
an acre of bearing orchard or vineyard have been presented
in Table 3.

It appears that while the selling price of improved
farm land and bearing fruit land have increased since the
period from 1850 to 1875, the price of improved farm land
has increased more rapidly than that of bearing fruit land.
The increase in the selling price of the fruit land shows
that the enlarging demand of the country for greater amounts
of fruit has been great enough to extend the production into
more marginal areas, thus raising the cost of the marginal
part of the supply and increasing the economic rent enjoyed
by the producers in the more favored areas. The increase

in the economic rent is a prime factor in the increase
in the selling price of bearing fruit land. The improve-
ments in transportation have made it possible to produce
the fruits at greater and greater distances from the
markets and have thus extended the area of effective
competition with the growers nearer the markets, thus
reducing the rate of increase in the value of the plant-
ings nearer to the markets. The decline of the prices
of bearing fruit land since 1914, when estimated on the
basis of 1910-1914 dollars, shows that the supply of
fruits has apparently caught up with the demand at the
general price level prevailing since 1914.

Although the margin of profit per unit has
apparently declined for the fruits as a whole, the
continued expansion of fruit growing is of itself evidence
that a margin of profit still exists and that the margin
of profit or the possibilities of making a profit are
considered by the fruit growers to be equal at least
to those in general farming and are probably somewhat
greater. The solution of the problem of narrower margins
of unit profits lies only in so limiting the number of
growers and the fruit acreage in relation to the demand
that the increased production of the remaining growers
resulting from increased efficiency will not increase
the flow of fruit to the markets beyond the quantity
which permits the desired degree of profitableness.

With the margins of profit per unit decreasing, because of the trends of costs of production and purchasing power, for the fruits as a group, there is no occasion for any wide-scale expansion of fruit acreage. Indeed such expansion would simply invite financial ruin. The only plantings that can be encouraged at this time are those that can be made under exceptionally favorable circumstances, i.e., where both the growing and marketing costs are sure to be low. The individual grower now possessing an orchard or vineyard will find the most feasible method of securing a wider margin of profit per unit to lie in reducing costs per unit through more skillful management.

SUMMARY

Cost of Production - The cost of production of apples in terms of goods has increased until it is at present from 150 to 200 per cent of the cost in the period from 1850 to 1875. The cost of production of peaches on the same basis is now approximately 200 per cent of the 1850 to 1875 cost. There are not sufficient data for the other fruits included in the study to permit statements similar to those already made, but the general impression gained from the source materials is that there has been a substantial increase in the costs of production of pears, plums, cherries, grapes, oranges and grapefruit,

considering the country at large.

Purchasing Power -   The purchasing power of apples in the middle Atlantic and north central states has increased until it is at present from about 125 to 175 per cent of its value in the period from 1850 to 1875. The purchasing power of pears in the same area is now from about 60 to 75 per cent of its 1880 value. The purchasing power of peaches is at present from about 25 to 50 per cent of its value from 1850 to 1875. The purchasing power of plums is now from about 60 to 90 per cent of its 1880 value, and that of fresh sour cherries from about 70 to 80 per cent of its 1880 value, and that of grapes from about 30 to 50 per cent of its 1880 value. The present purchasing power of Florida oranges in New York is about 60 per cent of its 1889 value, and the purchasing power of Florida grapefruit on the same market is at present about 60 per cent of its 1891 value, reading the values from the trend lines as for the other fruits. The trend in 1891 is, however, considerably above the actual value for that year. The reason is the extraordinary rise of purchasing power of grapefruit (as of oranges) in the period between 1895 and 1900 due to the freezes within that period, and the trend line is thus pulled sharply upward, resulting in the wide margin between the actual and the trend of purchasing power in 1891.

Unit Margin of Profit -   The only possible result of
the generally increased costs of production and the de-
creased purchasing power of the fruits as a group is a
narrower unit margin of profit.

Profitableness of Fruit Growing -   The available evidence
seems to indicate that though the margin of profit is not
as wide as it formerly was in fruit growing, either
absolutely or in relation to some other types of production,
there is still a margin of profit sufficiently wide to
cause expansion of fruit growing to some extent. Any
further expansion at present, however, should be made
only under exceptionally favorable circumstances, i.e.,
where both the growing and marketing costs are sure to be
low.

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APPENDIX

NOTES ON APPLES

Yields - There is much more information in the files of
the agricultural and horticultural magazines on apple yields
than on the costs of production, but due to the news nature
of the yield reports the majority of them are above the
general average of the commercial orchard yields of the
time. It is possible, however, to discard references to
single trees, small groups of trees, and the less authentic
reports and to make an estimate from the remainder of the
usual yields of reasonably well located and well-cared-for
orchards.

An average for five crops of 151 barrels per acre for
a well-cared-for New Hampshire orchard in the years 1848-
1852 has been recorded (11), though the general average for
that area was estimated to be 60 barrels per acre. In
1856 a 20-acre Connecticut orchard was reported to produce
approximately 30 to 40 barrels per acre per year (12).
The 1859 average sales per acre in Orleans, Monroe, and
Niagara counties of western New York indicate a yield
comparable to that of the Connecticut orchard for most
of the growers (13) although the best orchards in Orleans
county in 1863 averaged 100 barrels per acre (13). Other
reports from the same area in 1864 (15) and 1867 (14)
state that the average yield was from 50 to 100 barrels
per acre with a few orchards attaining up to 150 and more.

A six acre orchard in good soil in Genesee county,
N. Y., 20 years old in 1867, produced an average of 100
barrels per acre for the six crops of 1862-1867, rang-
ing from 25 to 135 barrels per acre for those years
(16,79). A report in 1867 (79) stated that the majority
of western New York growers estimated the annual average
at 1 barrel per tree plus culls (about 40 to 50 barrels of
saleable fruit per acre) and that this yield could be
doubled with good care. A three acre orchard near Stark-
ville, N. Y., 40 to 50 years old, with excellent care
produced from 111 to 133 barrels per year during the
period 1857-1868 (18). In 1875 the average yield of
Michigan orchards was placed as low as 30 bushels per
acre (19). In 1884 it was reported that the usual crop
of a 275-acre orchard near Hudson, N. Y., was slightly
over 70 barrels per acre (23). An orchard survey of
Niagara county, New York, in 1909 (26) showed a 10 year
average of 93 barrels per acre in the better cultivated
orchards and an average of 65 barrels in sod orchards.
A block of fine Baldwin trees in New York, 27 years old
in 1904, produced an average of 118.4 barrels per acre for
the years 1904-1923 (36). In Frederick county, Virginia,
it was found that the average yield per acre for orchards
of less than 50 acres ranged from 31 to 57 barrels per
acre and in larger orchards, from 35 to 53 barrels (86).
Another study in Niagara county, N. Y., in 1926 (83) showed
that the yield on Dunkirk sandy loam averaged 46 barrels

per acre, and on Clyde fine sandy loam, 36 barrels per
acre. The 1915-1920 average in the Bitter Root valley
of Montana was 143 boxes per acre (about 45 barrels) and
119 boxes (about 40 barrels) for the period 1921-1926
(40). The 1919-1925 average per acre in the Pajaro
valley of California was from 400-450 boxes (133-150
barrels) in orchards with good care and generally about
250 boxes in Sonoma county (about 80 barrels) (1).
The approximate average of certain areas on a barrel
basis per acre for the years 1919-1926 have been
reported (83) as follows: state of Washington, 86,
Niagara county, N. Y., 52, New York state, 35, Virginia
20, and Missouri, 19.

In 1902 a record of the crops of a block of
Baldwin and Russet trees in Massachusetts (number and
acreage not given) for 40 years was reported (25), cover-
ing the years 1860-1901. It is of interest as a record
of fluctuations in yield and is presented here:

	Baldwin	Russet		Baldwin	Russet
1860	173	172	1881	70	60
1861	35	-	1882	151	106
1862	225	167	1883	25	6
1863	108	40	1884	125	50
1864	47	9	1885	300	70
1865	2	6	1886	100	25
1866	3	3	1887	130	80
1867	7	8	1888	250	15
1868	125	65	1889	200	125
1869	10	5	1890	14 (frost)	5
1870	105	18	1891	100	278
1871	-	14	1892	500	46
1872	150	40	1893	16	147
1873	40	4	1894	600	30
1874	-	-	1895	20	30
1875	62	103	1896	500	140
1876	150	40	1897	30	60
1877	15	12	1898	500	130
1878	300	140	1899	100	-
1879	20	25	1900	800	90
1880	300	130	1901	50	50

Cost of Production -   Complete or definite reports of the
costs of apple production with clearly apparent authenticity

are extremely few in the source materials prior to about
1910. Cost estimates prior to that time have to be made
for the most part from recorded yields per acre, operating
costs, cash expense accounts, total sales, net returns,
and statements of the comparative costs and profits of
orcharding and general farming. Most of the reports con-
fined to the costs of production were very brief and were
necessarily limited to a single orchard or neighborhood,
and prior to the establishment of Horticultural columns
or sections in the periodicals were generally scattered
with other miscellaneous items through the publication.
The general summary of these costs is presented in the
Presentation of Data section, but three of the more
detailed accounts of apple production costs are present-
ed here for comparison with present practices and costs.
In 1857 a report, probably of Michigan conditions, was
made (61) of the costs, exclusive of land, for the first
seven years of a 200 tree apple orchard as follows:

200 trees on 4 acres	$36.00
Staking and setting	10.00
Washing trees once each year	7.00
Pruning, manure, and staking	12.00
Resetting of 5 trees	1.25
Damage to crop in 1st 7 years	20.00
Interest	43.12
	$129.37

Returns:			
4th year	25	bu.	$12.50
5th "	50	"	25.00
6th "	150	"	72.00
7th "	30	"	15.00
Trees worth $5 each			1000.00
			$1127.50
		−	129.37
Net			$ 998.13

In 1871 another report (62) of orchard costs in the fruit belt of Michigan for the first and second 10 year periods of its life was as follows:

```
            First 10 year period
            1 acre, cleared              $250.00
            40 trees at $ .25              10.00
            Tillage per year, $10        100.00
            Interest at 10%              260.00
                                         $620.00
            Apple sales in 1st 10 years - 50.00
                           Net cost      $570.00


            Second 10 year period
            Cost at 10 years             $570.00
            Interest on same             620.00
            Tillage for 10 years
                      at $10             100.00
                                        $1290.00
            Apple sales in 2nd 10 years  -600.00
                           Net cost     $ 740.00
```

In 1872 a report of the costs of the first 10 years for one acre, again in Michigan, was made (63) as follows:

	Costs	Returns
Land	$125	
Manure and mulch	75	
Cultivation of corn	35	$75 (70 bu.)
Cultivation of oats or wheat	15	25
Grass cutting for 8 years	28	240 (10 tons)
40 trees	12	
Setting	3	
Pruning	8	
Borer control	10	
Mice control	5	
Codling moth control	7	
Others (controls)	12	
Straightening and staking	5	
Scraping and washing	4	
Mulching	6	
Cultivating	8	
Management	5	
Harvesting 50 bushels	5	25
10 year total	$360	$360

NOTES ON PEACHES

Yields -   As in the case of apples the majority of the
reports of peach yields found in the magazines were there
because of their news value and were thus likely to be
representative of the more unusual yields, but there are,
however, a number of reports which appear to describe the
yields of the general average of the commercial orchards.
Such reports as those of a 400-acre Maryland orchard which
in the years 1854-1856, inclusive, bore an average of 62,
105, and 30 baskets per acre (68); of a 16-acre Pennsylvania
orchard set in 1869 which bore in the years 1874-1878
an average of 100, 181, 268, 19, and 75 baskets per acre
(21); of a 1400 tree New Jersey orchard that averaged 65,
143, 230, 107, 80, and 36 baskets per acre for its third
to eighth crops (24); of a 15-acre Michigan orchard that
bore in the years 1886-1893, inclusive, average crops of
18, 42, 50, 74, 6, 145, 70, and 106 bushels, respectively
(65), are probably more representative of commercial pro-
duction. The yields of Elbertas at the Delaware station
(33) per acre for 1912 to 1915 were 148, 189, 664, 778
baskets and the yields of Belles were 246, 1, 716, and 768
baskets. The first eight crops of a 12-acre Michigan
orchard averaged 2, 181, 150, 259, 189, 251, 93, and 51
bushels per acre (29). The 1913-1925 average per acre
production of peaches in Niagara county, N. Y., on Dunkirk
sandy loam was 80 bushels and only 46 on Clyde fine sandy

loam (83). The yields in bushels per acre for several
peach areas in the South are given as follows as the
estimate of the normal crops at the present time (39):
McBee, S. C., 140, Greenville, S. C., 155, Sand Hills,
N. C., 175, Fort Valley, Ga., 100, Kingston, Tenn., 150,
and Highland, Ark., 125.

Cost or Production -   As in the case of apples, references
to costs of production of peaches were few and scattered
widely through the source materials, but a summary of the
reports representative of what was believed to be general
commercial costs are presented in the Presentation of Data
section. Some of the itemized cost accounts are presented
here for comparison with present conditions. A record of
the first eight years of a 60-acre peach orchard in Huron
county, northern Ohio, is presented below (20):

5000 trees at 3 years	$3000	Part crop 1871, net	$1600
60 acres of land	7000	Full " 1874, "	8000
Int. at 10%, 8 years	8000	Int. on above	1440
Replant 6 acres	600	Cost of land	7000
	$18600		$18,040

This leaves a net loss of $560, though the trees are now (1876)
worth $2000.

A 14-acre orchard at Holt, Mo., 12 years old in 1882,
averaged a little over $50 per acre (net) through the 12th
year (22). The cost statement is presented below:

Land, per acre	$50
Trees	50
Plowing and planting	7
Cultivation	43
	$150

Interest at 10% plus handling costs total $1088 for the 12 years
Receipts of $2150 minus the costs equals a net of $1062 in 12 yrs.

J. H. Hale submitted the following estimate of the
cost per 100 acres of a Georgia peach orchard through the
first 5 years. The date of the report was 1899 (80).
He estimated the costs for a similar orchard in
Connecticut to be somewhat more than the Georgia figures.
The cost of the land and other fixed costs are not
included

	First year			Next four years	
Trees, 16,000	$1000		Cultivation	$500
Plowing and planting	500		Pruning	100
Fertilizer	500		Fertilizer	500
Tools	500		Tools and repairs	100
Cultivation	250		Per year	1200
	$2750			4
			Four years	4800
			First year	2750
			Total	$7550

The Georgia Experiment Station in 1899 (80) also
estimated the cost of establishing and carrying a 100 acre
orchard through the first 5 years, to which the fixed costs
must be added, as follows: (No cultivation was indicated
in the items after the first year, though perhaps it was
presumed to be the same as for the first year.).

Preparation of land	$150		Pruning 2nd year	$25
Planting trees	300		" 3rd "	40
Cultivation	200		" 4th "	100
1st year	$650		" 5th "	125
				$290
				650
			5 year total of	$940

The 1907 cost of a bushel of peaches in Michigan based
on the costs at that time are reported (66), though the costs

of the 5th year are not itemized. The costs of the next
5 years are also included.

First year

Land at $100 per acre, 6% interest	$6.00
Fitting	3.00
104 trees at $.07, 20' x 20'.	7.28
Setting	3.00
Harrowing 5 times	1.50
1.5 bu. oats	.45
	$21.23

	2nd yr.	3rd.	4th.	5th	
Interest	$6.00	6.00	6.00		
Spraying	1.50	3.00	4.50		
Pruning	1.50	3.00	4.50		
Plowing and harrowing	4.50	4.50	4.50		
Cover crop	.75	.75	.75		
50 bushels ashes			2.50		
Totals	$14. 25	17.25	22.50	28.00	
Next 5 years at $40					$200.00
1st 5 years					103.48
10 years cost					$303.48

The average per tree production in the whole 10 year
period is 10 bushels, making the cost on the trees equal
to $ .29 per bushel, or $ .45 leaving the orchard.

A balance sheet for a 15 acre, 12 year old peach
orchard in Michigan has been reported as follows (29):

Expenses		Returns	
Total cost for orchard	$7831.37	Total returns	$19,094.42
Ave. cost per year	652.61	Ave. returns yrly.	1,591.20
Ave. cost per acre, per yr.	43.50	Ave. per A, per yr.	106.08

Net profit per acre per year	$62.57
Net profit per bushel	.66
Overhead to be added to expenses equivalent of	$424.30

The cost of development through the first three years in
the Ozark foothills of Arkansas and in the Highland district
of that state in 1925 is reported (8) as $62 and $71,
respectively including interest. The cost in the McBee

area of South Carolina for the first three years is given as 68.10 or $128.10 with the land included, and 260 per acre in the Greenville area of the state, including the land (39).

NOTES ON GRAPES

Yields - The average of the six crops of 1851-1856 of an acre of vineyard in Ontario county, N. Y., was 5583 pounds (78). Vines on Kelley's Island, Ohio, in 1868 in fair condition bore 2 tons per acre (17). The average yield for Michigan for the years 1873-1874 was 1.5 tons per acre, the average yield per acre of a vineyard near Paw Paw, Michigan, in the years 1882-1890 was 3990 pounds (64) and the reported yields of a number of vineyards in western Iowa in 1920 (44) ranged from 3672 to 5916 pounds per acre. References similar to the above, when added to these samples, were the basis of the summary in the Presentation of Data section, under Grapes.

Table 14. Trend of wholesale prices in the United States, 1801 -1929.
Bureau of Labor Statistics
Adjusted to 1910-1914 base

Year	Value	Year	Value	Year	Value
1801	163	1844	91	1887	82
1802	134	1845-	91	1888	84
1803	137	1846	95	1889	84
1804	148	1847	95	1890	82
1805	152	1848	90	1891	81
1806	149	1849	88	1892	76
1807	140	1850	91	1893	78
1808	137	1851	94	1894	70
1809	144	1852	91	1895	71
1810	157	1853	97	1896	68
1811	153	1854	100	1897	68
1812	155	1855	100	1898	71
1813	180	1856	100	1899	76
1814	226	1857	100	1900	82
1815	177	1858	90	1901	81
1816	151	1859	89	1902	86
1817	152	1860	89	1903	87
1818	149	1861	89	1904	87
1819	131	1862	105	1905	88
1820	112	1863	132	1906	90
1821	107	1864	169	1907	95
1822	110	1865	183	1908	92
1823	105	1866	170	1909	99
1824	104	1867	153	1910	103
1825	105	1868	143	1911	95
1826	104	1869	136	1912	101
1827	105	1870	126	1913	102
1828	100	1871	121	1914	100
1829	99	1872	123	1915	103
1830	96	1873	122	1916	129
1831	103	1874	118	1917	180
1832	104	1875	113	1918	198
1833	103	1876	105	1919	210
1834	96	1877	98	1920-	230
1835	109	1878	90	1921	150
1836	122	1879	86	1922	152
1837	121	1880	95	1923	156
1938	116	1881	94	1924	152
1839	122	1882	96	1925	152
1840	104	1883	94	1926	154
1841	103	1884	88	1927	149
1842	96	1885	83	1928	151
1843	90	1886	82	1929	150

Data supplied in a letter from Mr. Chas. E. Baldwin, Acting
Commissioner of Labor Statistics, dated Feb. 10, 1930. The data in
the letter were based on 1926 as 100 and are here converted to the
1910-1914 base.

Table 15. The per capita production and importation of certain fruits.

Date	Pounds Apples	Pounds Bananas	Crates Cantaloupes	Fruits Grapefruit	Fruits Oranges
1889	116			Less than 1	12
1890	64				
1891	155				
1892	92				
1893	86				
1894	99				
1895	158				
1896	164				
1897	114				
1898	80				
1899	118			" " 1	14
1900	136				
1901	87				
1902	134				
1903	121				
1904	142				
1905	81				
1906	126	'Ave. 1905-			
1907	68	'1909 is			
1908	84	' 21.2			
1909	80	' 20.4		" " 1	44
1910	77	20.7			
1911	114	23.9			
1912	124	23.5			
1913	76	22.0			
1914	130	25.0			
1915	116	20.7			32
1916	96	18.3			32
1917	82	17.0	.078		16
1918	82	16.7	.056		36
1919	64	16.9	.097	4	40
1920	106	17.4	.099	3	51
1921	46	13.9	.107	4	35
1922	93	21.1	.117	5	51
1923	92	20.0	.105	5	58
1924	68	20.0	.122	5	46
1925	76	22.1	.127	3	46
1926	106	25.2	.124		52
1927	52	24.2	.127		40
1928	78	26.8	.129		68
1929	58	26.2	.138		42

Table 15 (cont). The per capita production and importation of certain fruits.

Date	Pounds Peaches	Pounds Pears	Quarts Strawberries	Melons Watermelons
1899	10			
1900	32			
1901	30			
1902	24			
1903	18			
1904	24			
1905	22			
1906	26			
1907	13			
1908	27			
1909	20	4.9		
1910	26	5.7		
1911	18	6.2		
1912	28	6.2		
1913	20	5.2		
1914	28	6.2		
1915	32	5.6		
1916	18	5.9		
1917	24	6.6	1.88	.44
1918	16	6.5	1.48	.31
1919	24	6.8	1.49	.40
1920	22	8.0	1.47	.54
1921	15	5.2	1.77	.58
1922	26	9.5	2.37	.65
1923	20	8.0	2.31	.38
1924	21	8.4	2.83	.51
1925	20	9.0	2.00	.49
1926	30	10.9	2.38	.60
1927	20	7.8	2.73	.49
1928	28	10.2	2.80	.53
1929	19	8.6	2.74	.56

The population figures used are from the 14th Census through 1920, the 1930 figures from the Census Bureau quoted in the Literary Digest of Aug. 23, 1930. One tenth of the difference between the figures for each ten years is added to the first, second, and following years of each decade to secure the population of those respective years.

The data for the fruits are from the following Year-books of the U. S. D. A. and Ohio Agr. Exp. Sta. Bul. 418, p. 34-35. Mich. 1928.
Apples, 1928, 1930
Bananas, 1930. Estimated on basis of 50 pounds per bunch, net.
Cantaloupes, 1920, 1925, 1930.
Grapefruit, Ohio. Bul. 418, Table 8, p. 34-35. 1928.
Oranges, Ibid., and 1930, 1930.
Peaches, 1920, 1925, 1928, 1930.
Pears, 1925, 1928, 1930.
Strawberries, 1920, 1922, 1930.
Watermelons, 1920, 1922, 1925, 1930
All except apples, peaches, and pears are commercial production.

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Table 16. The price and purchasing power indices of apples

Date	New York P. Ind.	New York P. Pow.	Boston P. Ind.	Boston P. Pow.	Detroit P. Ind.	Detroit P. Pow
1829			81	82		
1830			78	81		
1831			90	87		
1832			90	86		
1833			70	68		
1834			90	94		
1839			90	74		
1840			75	72		
1847	55	58				
1849					100	114
1850	59	65			40	44
1851					67	71
1852					40	44
1853	115	126			83	86
1855	67	67			67	67
1856	55	55			75	75
1857	101	101			83	83
1858	82	91				
1859	89	100				
1860	64	72				
1861	82	92				
1862	50	48				
1863	91	69			120	91
1864	96	57				
1865	123	64				
1866	146	86				
1867	123	80				
1868	114	80				
1869	103	76				
1870	55	44				
1871	116	96				
1872	71	58				
1873	89	73				
1874	64	54			89	70
1875	98	87			56	53
1876	59	56			131	134
1877	76	78			57	63
1878	46	51				
1879	62	72	96	112	100	116
1880	43	45	52	55	50	53
1881	96	102	119	126	119	126
1882	91	95	118	123	111	116
1883	108	115	138	147	123	131
1884	55	62	82	93	72	82
1885	99	119	75	90	61	73
1886	74	90	72	88	67	82
1887	65	79	84	102	77	94
1888	85	101	76	90	59	70

Table 16 (Con'd) The price and purchasing power indices of apples.

Date	New York		Boston		Detroit	
	P. Ind.	P. Pow	P. Ind.	P. Pow	P. Ind.	P. Pow
1889	99	118	108	128	80	95
1890	96	117	153	186	141	172
1891	47	58	77	95	77	95
1892	78	103	95	125	108	142
1893	105	135	118	151	125	160
1894	82	117	73	194	92	131
1895	76	107	88	124	75	106
1896	46	68	51	75	47	69
1897	87	128	111	163	116	170
1898	105	148	100	141	119	168
1899	70	92	90	118	100	132
1900	77	94	75	91	75	91
1901	150	185	129	159	53	65
1902	69	80	80	93	77	90
1903	85	98	102	117	97	111
1904	69	79	73	84	67	77
1905	114	130	117	133	116	132
1906	87	97	101	112	79	88
1907	110	116	117	123	128	135
1908	105	114	104	113	136	148
1909	115	116	112	113	97	96
1910	115	112	91	88	153	148
1911	90	95	109	115	92	97
1912	91	90	85	84	74	73
1913	127	124	144	141	113	111
1914	78	78	69	68	68	68
1915	94	91	111	108	106	103
1916	118	91	115	89	114	88
1917	146	81	159	88	194	108
1918	187	94	170	86	158	80
1919	239	114	218	104	306	146
1920	169	73	214	93	116	50
1921	232	155	299	199	290	193
1922	148	97	138	91	121	80
1923	146	94	160	102	155	99
1924	192	126	149	98	169	111
1925	180	118	154	101	148	97
1926	138	90			216	140
1927	197	132			300	201
1928	161	107			216	143
1929	161	107			211	141

Table 16 (con't) The price and purchasing power indices of apples.

Date	Virginia		Jonesboro, Ill.	
	P. Ind.	P. Pow	P. Ind.	P. Pow
1866			125	74
1867	102	67	107	70
1868	167	117	105	73
1869	122	90	70	51
1870	110	87	83	66
1871	138	114	70	58
1872	95	77	74	60
1873	100	82	79	65
1874	114	97	61	52
1875	117	104	57	50
1876	76	72	55	52
1877	125	128	47	48
1878	92	102	75	83
1879	75	87	52	60
1880	100	105	37	39
1881	92	98	69	73
1882	144	150	59	61
1883	95	101	78	83
1884	71	81	80	91
1885	71	86	39	47
1886	57	70	49	60
1887	79	96	65	79
1888	68	81	37	44
1889	69	82	64	76
1890	144	176	87	106
1891	77	95		
1892	73	96		
1893	75	96		
1894	97	138		
1895	63	89		
1896	63	93		
1897	67	99		
1898	125	176		
1899	65	86		
1900	67	82		
1901	68	84		
1902	90	105	70	81
1903	71	82	77	88
1904	86	99	73	84
1905	75	85	93	106
1907	113	119	125	132
1908	78	85	91	99
1909	97	98	87	97
1910	103	100	135	131
1911	111	117	79	83
1912	86	85	89	88
1913	114	112	103	101
1914	82	82	95	95
1915	87	84	65	63

Table 16 (con't) Price and purchasing power indices of apples.

| | Virginia | | Jonesboro, Ill. | |
Date	P. Ind.	P. Pow	P. Ind.	P. Pow
1916	102	79	137	106
1917	148	82	135	75
1918	159	80	214	108
1919	216	103	244	116
1920	173	75	197	86
1921	286	191	256	171
1922	173	114	146	96
1923	165	106	136	87
1824	141	93	153	100
1925	154	101	155	102
1926	105	68	119	77
1927	186	125	182	122
1928			159	105

The prices in New York, Boston, and Detroit are wholesale prices, the prices in Virginia and Jonesboro, Illinois are based on the prices to the producer. The data are from the following sources:

New York: 1847-1880 American Agriculturist
           1881-1892 Rural New Yorker
           1893-1912 Cornell Circ. 22, Table 4, p. 17. 1914.
           1913-1925 Ohio Bul. 418, Table 32, p. 67.
           1926-1928 U.S.D.A. Yearbook p. 902, 1926; p. 768, 1928.
Boston: 1829-1840 New England Farmer
           1879-1914 Cornell Ext. Bul. 28, Table 4, p. 155,1918.
           1915-1925 U.S.D.A. Stat. Bul. 14, p. 45, 1927.
Detroit: 1849-1914 Michigan Farmer
           1915-1925 U.S.D.A. Stat. Bul. 15, p. 60, 1927.
           1926-1929 Michigan Farmer
Jonesboro,
   Ill.:   1866-1890 Ill. Agr. Exp. Sta. Bul. 351, p. 520, 1930.
           1902-1928 Ibid.
Virginia: 1867-1927 Va. Agr. Exp. Sta. Tech. Bul. 37, p. 177, 1929.

Table 17. The price and purchasing power indices of apples,
based on the price to the producer

Date	New York P. Ind.	New York P. Pow	Michigan P. Ind.	Michigan P. Pow	Virginia P. Ind.	Virginia P. Pow
1910	135	131	155	150	100	97
1911	82	86	92	97	113	119
1912	76	75	74	73	87	86
1913	143	140	113	111	130	127
1914	62	62	68	68	72	72
1915	111	108	105	102	96	93
1916	105	81	114	88	102	79
1917	183	102	194	108	162	90
1918	160	81	158	80	185	93
1919	294	140	306	146	236	112
1920	102	44	116	50	170	74
1921	305	203	290	193	336	224
1922	105	69	121	80	142	93
1923	202	129	155	99	174	112
1924	165	108	169	111	157	103
1925	167	110	148	97	166	109
1926	159	103	121	78	192	125
1927	290	195	282	189	245	164
1928	254	168	198	131	236	156

Date	Missouri P. Ind.	Missouri P. Pow.	Colorado P. Ind.	Colorado P. Pow.	Washington P. Ind.	Washington P. Pow.
1910	103	100	124	120	104	101
1911	103	108	96	101	122	128
1912	77	76	102	101	84	83
1913	113	111	103	101	114	112
1914	105	105	76	76	78	78
1915	85	82	103	100	102	99
1916	135	105	100	78	107	83
1917	147	82	117	65	126	70
1918	237	120	167	84	133	67
1919	242	115	183	87	191	91
1920	170	74	172	75	167	73
1921	433	289	189	126	179	119
1922	125	82	78	51	107	70
1923	150	96	139	89	121	78
1924	158	104	116	76	165	108
1925	190	125	137	90	169	111
1926			100	65	144	94
1927			170	114	278	186
1928			111	74	189	125

Table 18. The price and purchasing power indices of pears.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1847	105	110		
1948	117	130		
1853	184	190		
1854	93	93		
1857	252	252		
1859	280	315		
1860	159	179		
1861	140	157		
1862	68	65		
1863	241	182		
1864	295	174		
1866	187	110		
1868	334	234		
1869	225	165		
1870	234	186		
1871	202	167		
1872	234	190		
1873	179	147		
1874	277	235		
1875	196	173		
1876	230	219		
1877	144	147		
1878	181	201	167	186
1879	93	108		
1880	113	119	141	148
1881	154	164	261	278
1882	202	210	214	223
1883	140	149	209	222
1884	173	196	199	226
1885	124	149	113	136
1886	167	204	105	128
1887	82	100	96	117
1888	153	182	149	177
1889	155	184	91	108
1890	145	177	204	249
1891	71	88	94	116
1892	108	142	130	171
1893	79	101	119	152
1894	77	110	81	116
1895	70	99	85	120

Table 18 (con't)   The price and purchasing power indices of pears.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1896	95	140	67	99
1897	64	94	109	160
1898	72	101	116	163
1899	69	91	101	133
1900	56	68	102	124
1901	70	86	101	125
1902	83	96	146	170
1903	93	107	102	117
1904	95	109	94	108
1905	106	120	102	116
1906	80	89	100	111
1907	107	113	97	102
1908	113	123	65	71
1909	134	135	115	116
1910	70	68	113	110
1911	91	96	76	80
1912	132	131	119	118
1913	97	95	119	117
1914	112	112	70	70
1915	131	127	87	84
1916	121	94	129	100
1917	148	82	181	100
1918	190	96	221	112
1919	187	89	261	124
1920	213	93	217	94
1921	244	163	226	151
1922	146	96	156	103
1923	203	130	206	132
1924	150	100	235	155
1925	161	106	193	127
1926	210	136	206	134
1927	140	94	217	146
1928	166	110	206	136
1929	220	147	206	137

Table 19. The price and purchasing power indices of pears,
based on the price to the producer.

Date	New York		Michigan		California	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1910	111	108	121	111	106	103
1911	108	114	84	88	105	110
1912	104	103	96	95	69	68
1913	91	89	108	106	100	98
1914	87	87	90	90	122	122
1915	89	86	96	93	86	83
1916	103	80	96	74	68	53
1917	150	83	160	89	132	73
1918	194	98	180	81	143	72
1919	222	106	202	96	173	82
1920	161	70	138	60	171	74
1921	239	159	170	113	219	146
1922	72	47	85	56	158	104
1923	227	146	140	90	115	74
1924	173	114	121	80	132	87
1925	173	114	134	88	193	127
1926	250	162	106	69	115	97
1927	235	158	144	97	108	72
1928	230	152	148	98	155	103

Data from the following sources, 1910-1925:

New York: U.S.D.A. Sta. Bul. 14, p. 82, 1927.
Michigan: "   "   "   15, p. 61, 1927.
California: "   "   "   17, p. 140, "

Data from 1926-1928 from the Market News Service of
the U.S.D.A. for the states and years concerned, using the F. O. B.
prices.

Table 20. The price and purchasing power indices of peaches.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1847	202	213		
1848	242	269		
1853	141	145		
1854	242	242		
1857	322	322		
1858	322	358		
1859	343	385		
1860	343	385		
1861	322	362		
1862	141	134		
1863	242	183		
1864	268	155		
1865	270	140		
1866	226	133		
1867	282	184		
1868	429	300		
1869	242	178		
1870	262	208		
1871	262	216		
1872	145	118		
1873	281	230		
1874	242	205		
1875	121	107		
1876	181	172		
1877	181	185		
1878	262	291	133	148
1879	89	103		
1880	254	267	86	90
1881	145	154	204	217
1882	110	114	142	148
1883	181	192	189	201
1884	100	114	173	196
1885	181	218	165	199
1886	145	177	142	173
1887	121	148	104	127
1888	121	144	118	140
1889	145	173	168	200
1890	302	368	157	191
1891	60	74	107	132
1892	161	212	133	175
1893	48	62	98	126
1894	68	97	82	117
1895	133	187	57	80

Table 20 (Con't)   The price and purchasing power indices of peaches.

Date	New York P. Ind.	New York P. Pow.	Detroit P. Ind.	Detroit P. Pow.
1896	107	157	63	93
1897	89	131	90	132
1898	105	148	63	89
1899	149	196	118	155
1900	81	99	79	96
1901	93	115	47	58
1902	81	94	102	119
1903	141	162	106	122
1904	89	102	102	117
1905	141	160	94	107
1906	113	126	142	158
1907	190	200	189	200
1908	125	136	122	133
1909	133	134	82	83
1910	125	121	133	129
1911	113	119	82	86
1912	97	96	94	93
1913	93	91	110	108
1914	72	72	80	80
1915	56	54	110	107
1916	181	140	114	88
1917	121	67	204	113
1918	185	93	181	91
1919	121	58	150	71
1920	181	79	150	65
1921	202	135	228	152
1922	144	95	113	74
1923	200	128	162	104
1924	168	110	164	108
1925	221	145	185	122
1926	102	66	112	73
1927	177	119	161	108
1928	165	109	128	85
1929	121	81	133	89

Data from the following sources:
New York: 1847-1880 American Agriculturist
1881-1929 Rural New Yorker
Detroit: 1878-1929 Michigan Farmer

Table 21   The price and purchasing power indices of peaches,
based on the price to the producer.

Date	Georgia P. Ind.	Georgia P. Pow.	N. Carolina P. Ind.	N. Carolina P. Pow.	Arkansas P. Ind.	Arkansas P. Pow.	California P. Ind.	California P. Pow.
1910	82	80	78	76	104	101	86	83
1911	114	109	131	138	112	118	109	115
1912	76	75	80	84	84	83	91	90
1913	131	129	118	123	100	98	141	137
1914	96	96	92	92	98	98	73	73
1915	88	85	90	87	64	62	54	52
1916	67	75	108	84	91	70	75	58
1917	135	64	118	66	136	76	101	56
1918	133	67	156	79	198	100	136	69
1919	176	84	198	94	172	82	178	85
1920	189	82	198	86	258	112	196	85
1921	124	83	200	133	178	119	136	91
1922	129	85	142	93	122	80	121	80
1923	145	93	198	127	179	115	74	47
1924	104	68	142	93	120	79	126	83
1925	122	80	156	103	160	105	78	51
1926	117	76	100	65				
1927	140	94	226	152				
1928	104	69	83	55				
1929	205	131	200	133				

Date	Illinois P. Ind.	Illinois P. Pow.	Michigan P. Ind.	Michigan P. Pow.	New York P. Ind.	New York P. Pow
1910	115	112	98	95	92	89
1911	76	80	84	88	96	101
1912	122	121	116	115	108	107
1913	92	90	104	102	94	92
1914	94	94	98	98	108	108
1915	90	87	76	74	61	59
1916	124	96	87	67	94	73
1917	162	90	141	78	94	52
1918	297	150	239	121	209	106
1919	230	110	201	96	182	87
1920	261	113	155	67	152	86
1921	328	219	204	136	172	115
1922	133	88	113	74	73	48
1923	218	140	134	86	122	78
1924	169	111	151	99	130	86
1925	215	141	177	116	166	109
1926			104	68	56	36
1927			120	81	127	85
1928			98	65	127	84

Data from the following sources, 1910-1925:

Georgia:	U. S.D.A.	Sta.	Bul.	16,	p. 97,	1927.
N. Car.:	"	"	"	"	p. 67,	"
Arkansas:	"	"	"	"	p. 185,	"
Illinois:	"	"	"	15,	p. 43,	"
Michigan:	"	"	"	"	p. 60,	"
New York:	"	"	"	14,	p. 81,	"
California:	"	"	"	17,	p. 140,	"

Data for 1926-1929 for the states and years concerned are from the U.S.D.A. Mkt. News Service on F. O. B. prices.

Table 22. The price and purchasing power indices of plums.

Date	New York		Detroit	
	P. Ind.	P. Pow	P. Ind.	P. Pow.
1848	245	272		
1853	219	226		
1854	237	237		
1857	310	310		
1858	201	223		
1859	329	368		
1860	320	360		
1862	128	122		
1863	310	235		
1870	169	134		
1872	137	111		
1873	365	299		
1874	219	186		
1875	237	210		
1876	158	150		
1877	164	167		
1878	173	192		
1879	158	184		
1880	140	147	96	101
1881	146	155	308	328
1882	140	146	250	260
1883	104	111	278	296
1884	146	166	269	306
1885	71	88	154	186
1886	123	156	192	234
1887	113	138	212	258
1888	160	190	216	257
1889	85	101	212	252
1890	109	133	145	177
1891	94	116	132	163
1892	84	110	197	259
1893	109	140	125	160
1894	42	60	98	140
1895	134	189	149	210
1896	109	160	68	100
1897	73	107	93	137
1898	91	128	52	73
1899	182	239	105	138
1900	91	111	105	128
1901	109	134	77	95
1902	128	149	105	122
1903	146	168	65	75
1904	146	168	86	99
1905	91	103	77	88

Table 22 (Con't) The price and purchasing power indices of plums.

| Date | New York | | Detroit | |
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1906	109	121	128	142
1907	164	173	163	172
1908	109	118	115	125
1909	91	92	88	89
1910	164	159	96	93
1911	91	96	68	72
1912	91	90	112	111
1913	82	80	128	125
1914	73	73	96	96
1915	73	71	96	93
1916	123	95	154	119
1917	149	83	177	98
1918	328	166	385	194
1919	314	150	327	156
1920	140	61	269	117
1921	162	108	208	139
1922	237	156	298	196
1923	182	117	219	140
1924	164	108	183	120
1925	117	77	250	164
1926	128	83	148	96
1927	226	151	188	261
1928	164	109	111	74
1929	292	195	308	205

Data from the following sources:
New York: 1848-1880 American Agriculturist
           1881-1925 Rural New Yorker
           1926-1929 Chicago Packer
Detroit: 1880-1929 Michigan Farmer

Table 23. The price and purchasing power indices of cherries.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1847	86	90		
1848	143	159		
1854	100	100		
1857	186	186		
1858	143	159		
1860	128	144		
1862	100	105		
1863	171	130		
1869	186	137		
1870	214	170		
1872	143	116		
1873	157	133		
1875	128	122		
1876	114	116		
1877	128	142		
1878	157	174		
1879	86	100		
1880	143	150		
1881	57	61		
1882	171	178		
1883	86	91		
1884	100	114		
1885	100	120	117	141
1886	86	105	100	122
1887	143	174	100	122
1888	128	152	150	178
1889	128	152	100	119
1890	128	156	117	143
1891	86	106	67	83
1892	86	113	67	88
1893	57	83	67	86
1894	57	81	83	118
1895	57	80	83	117
1896	114	168	67	98
1897	86	126	67	98
1898	86	121	50	70
1899	71	93	83	109
1900	71	86	83	101

Table 23 (con't.) The price and purchasing power indices of cherries.

	New York		Detroit	
Date	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1901	43	53	83	102
1902	71	82	83	96
1903	86	99	100	115
1904	143	164	67	77
1905	71	81	67	76
1906	57	63	67	74
1907	128	135	100	105
1908	86	93	117	127
1909	114	115	83	84
1910	128	124	100	97
1911	100	105	50	53
1912	100	99	133	132
1913	114	112	133	130
1914	71	71	83	83
1915	128	124	100	97
1916	100	78	100	78
1917	86	48	117	65
1918	186	95	135	67
1919	171	81	233	111
1920	157	68	217	94
1921	171	114	200	133
1922	186	122	200	132
1923	143	93	167	107
1924	100	66	150	99
1925	171	112	150	99
1926	128	83	133	86
1927	171	114	117	78
1928	157	104	150	99
1929	157	105	150	100

New York: 1847-1880 American Agriculturist
            1881-1929 Rural New Yorker
Detroit: 1885-1929 Michigan Farmer

Table 24. The price and purchasing power indices of grapes.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1848	400	444		
1853	400	412		
1855	267	267		
1859	400	449		
1860	233	262		
1861	267	300		
1862	167	159		
1863	333	252		
1868	467	326		
1869	533	392		
1870	233	185		
1871	267	221		
1872	267	217		
1873	267	219		
1874	233	197		
1875	267	236		
1876	267	254		
1877	233	238		
1878	267	297		
1879	200	232		
1880	167	176	250	263
1881	133	141	375	399
1882	100	104	167	174
1883	300	319	250	266
1884	267	303	208	236
1885	200	241	167	201
1886	200	244	208	254
1887	200	244	167	204
1888	200	238	125	149
1889	267	318	167	199
1890	267	326	167	204
1891	167	206	125	154
1892	100	132	125	164
1893	200	256	125	160
1894	100	143	83	118
1895	67	94	83	117
1896	67	98	83	122
1897	100	147	83	122
1898	67	94	83	117
1899	67	88	83	109
1900	67	82	42	51
1901	100	123	83	102
1902	100	116	125	145
1903	100	115	83	95
1904	100	115	83	95

Table 24 (con't) The price and purchasing power indices of grapes.

Date	New York		Detroit	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1905	67	76	83	94
1906	67	74	125	139
1907	100	105	167	176
1908	67	73	83	90
1909	67	68	83	84
1910	133	129	125	121
1911	67	70	83	87
1912	100	99	83	82
1913	100	98	125	122
1914	100	100	83	83
1915	100	97	125	121
1916	67	52	83	64
1917	100	56	125	69
1918	133	67	125	63
1919	133	63	250	119
1920	200	87	250	109
1921	167	111	292	195
1922	133	88	208	137
1923	100	64	208	133
1924	167	110	208	137
1925	200	132	292	192
1926	100	65	167	108
1927	100	67	167	112
1928	100	66	167	110
1929	133	87	167	111

Data from the following sources:

New York: 1848-1880 American Agriculturist
1881-1925 Rural New Yorker
1926-1928 U.S.D.A. Yearbook, 1928.
1929   Rural New Yorker.
Detroit: 1880-1929 Michigan Farmer

Table 25. The price and purchasing power indices of grapes, based
on the price to the producer

Date	New York		Pennsylvania		Michigan	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1910	100	97	94	91	132	128
1911	114	120	97	102	82	86
1912	71	70	91	90	73	72
1913	96	94	128	125	132	129
1914	125	125	84	84	82	82
1915	82	80	100	97	114	111
1916	100	78	125	97	123	95
1917	143	79	134	74	182	101
1918	189	95	181	91	186	94
1919	214	102	188	90	250	119
1920	232	101	219	95	182	79
1921	214	143	156	104	273	182
1922	161	106	156	103	182	120
1923	128	82	119	76	209	134
1924	132	87	150	99	250	164
1925	200	132	222	146	318	209
1926	239	155			186	121
1927	232	156			195	131
1928	250	166			173	114

Date	Arkansas		California	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1910	92	89	171	166
1911	125	132	76	80
1912	90	89	76	75
1913	100	98	98	96
1914	88	88	78	78
1915	80	78	58	56
1916	100	78	90	70
1917	140	78	102	79
1918	175	88	115	58
1919	200	95	146	70
1920	250	109	171	74
1921	250	167	207	138
1922	162	106	146	96
1923	175	112	149	96
1924	100	66	141	93
1925	138	91	146	96

Data from the following sources: 1910-1925.
New York: U.S.D.A. Sta. Bul. 14, p. 82, 1927.
Pennsylvania: "   "   "   " p. 110,1927.
Michigan: "   "   " 15, p. 61, 1927
Arkansas: "   "   " 16, p.185,1927.
California: "   "   " 17, p.140,1927.
New York and Michigan 1926-1928 from the U.S.D.A. Mkt. News Service
on those years and states, F. O. B. prices.

Table 26. The price and purchasing power indices of oranges.

Date	Florida		California	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1889	108	123		
1890	105	128		
1891	82	101		
1892	94	124		
1893	88	113		
1894	88	126		
1895	158	222	127	179
1896	130	191	121	178
1897	139	204	107	157
1898	143	201	87	122
1899	143	188		
1900	106	129		
1901	105	130		
1902	124	144		
1903	95	109	96	110
1904	90	103	87	100
1905	109	124	93	106
1906	100	111	99	110
1907	82	86	96	101
1908	98	106		
1909	94	93		
1910	83	80	97	94
1911	112	118	92	97
1912	117	116	100	99
1913	98	96	121	119
1914	92	92	90	90
1915	105	102	106	103
1916	122	94	112	87
1917	169	94	106	59
1918	194	98	215	108
1919	191	91	164	78
1920	175	76	216	94
1921	196	131	199	133
1922	173	114	246	162
1923	140	90	182	117
1924	194	127	193	127
1925	202	133	260	171
1926	151	98	196	127
1927	134	90	199	134
1928	188	124	150	100
1929	137	92		

The prices used were the wholesale prices in New York for both states, as given in Mr. O. C. Stine's letter of May 3, 1930. As in the case of grapefruit, the prices were compiled from the New York Producers Price Current, quotations for one day a week. Mr. Stine is chief of the Division of Statistical and Historical Research, Bureau of Agr. Ecs., U.S.D.A.

Table 27. The price and purchasing power indices of grapefruit.

	Florida		California	
Date	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1891	73	90		
1892	65	86		
1893	87	112		
1894	88	126		
1895	90	127		
1896	203	298		
1897	241	354		
1898	178	251		
1899	222	292		
1900	208	254		
1901	160	198		
1902	191	222		
1903	143	164		
1904	139	160		
1905	105	119		
1906	139	154		
1907	109	115		
1908	145	158		
1909	98	99		
1910	109	106		
1911	90	94		
1912	164	162	111	110
1913	88	86	108	106
1914	93	93	82	82
1915	65	63	70	68
1916	83	54	77	60
1917	112	62	80	44
1918	125	63	93	47
1919	156	74	116	55
1920	105	46	94	41
1921	149	100	100	67
1922	143	94	134	88
1923	135	86	97	62
1924	121	80	104	68
1925	138	91	136	89
1926	156	101	133	86
1927	129	86	129	86
1928	164	109		
1929	121	81		

Florida grapefruit prices are the wholesale prices at New York, furnished by Mr. O. C. Stine in charge of the Division of Statistical and Historical Research, Bureau of Agr. Ecs., U.S.D.A. in a letter dated May 3, 1930.

California prices are the weighed F. O. B. prices in California, from Calif. Agr. Exp. Sta. Bul. 463, p. 33, 1928.

Table 28. The price and purchasing power indices of butter.

Date	New York		Detroit		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1846	69	73			64	67
1847	69	73			68	72
1848	69	77			68	76
1849	69	78	57	65	68	77
1850	69	76	57	63	64	70
1851	69	73	52	55	68	72
1852	72	79	67	74	77	85
1853	79	81	76	78	77	79
1854	76	76	86	86	73	73
1855	83	83	95	95	82	82
1856	79	79	100	100	82	82
1857	76	76	110	110	95	95
1858	59	66	71	79	82	91
1859	66	74			77	86
1860	55	62			73	82
1861	55	62			91	102
1862	59	56				
1863	76	58	90	68		
1864	131	78	119	70		
1865	134	69				
1866	138	81			109	64
1867	107	70			100	65
1868	128	90			132	92
1869	134	98			123	90
1870	110	87	133	106	109	86
1871	93	77	114	94	100	83
1872	90	73			91	74
1873	110	90			100	82
1874	117	100	119	100	104	88
1875	96	85			104	92
1876	96	91	114	108	95	90
1877	83	85	90	92	82	84
1878	72	80	76	84	73	81
1879	55	64	76	88	64	74
1880	86	90	100	105	77	81
1881	76	81	105	112	86	91
1882	107	111	119	124	104	108
1883	90	96	100	106	86	91
1884	96	109	100	114	82	93
1885	76	92	95	114	86	104
1886	86	105	105	128	77	94
1887	79	96	105	128	77	94
1888	76	90	105	125	73	87
1889	69	82	95	113	68	81
1890	62	76	81	99	73	89
1891	83	102	81	100	73	90
1892	83	109	86	113	77	101
1893	86	110	95	122	82	105
1894	72	103	81	116	68	97

Table 28 (con't). The price and purchasing power indices of butter

Date	New York		Detroit		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1895	66	93	76	107	73	103
1896	59	87	67	98	64	94
1897	59	87	71	104	54	79
1898	62	87	71	100	59	83
1899	69	91	71	93	64	90
1900	72	88	81	99	73	89
1901	69	85	75	94	68	84
1902	79	92	86	100	82	95
1903	76	87	86	99	82	94
1904	69	79	71	82	82	94
1905	79	90	86	98	82	93
1906	79	88	81	90	86	96
1907	93	98	100	105	86	90
1908	83	90	100	109	91	99
1909	90	91	114	115	91	92
1910	100	97	110	107	104	101
1911	90	95	86	90	95	100
1912	103	102	105	104	100	99
1913	103	101	105	103	104	102
1914	96	96	100	100	104	104
1915	103	100	100	97	114	111
1916	107	83	108	84	118	91
1917	140	78	142	79	150	83
1918	167	84	169	85	182	92
1919	200	95	204	97	209	100
1920	213	93	219	95	227	99
1921	160	107	158	105	164	109
1922	140	92	138	91	136	89
1923	160	102	165	106	159	102
1924	157	103	165	108	150	99
1925	157	103	165	108	145	95
1926	148	96	154	100	145	94
1927	166	111	169	113	150	100
1928	166	110	169	112		
1929	159	106	173	115		

Data from the following sources:

New York: 1846-1880 American Agriculturist
1881-1926 Rural New Yorker
1927-1929 Michigan Farmer
Detroit: 1848-1929 Michigan Farmer
Virginia: 1846-1927 Va. Agr. Exp. Sta. Tech. Bul. 37, Table 85c,
p. 179-180, 1929.

Table 29. The price and purchasing power indices of beef cattle

Date	New York P. Ind.	New York P. Pow.	Chicago P. Ind.	Chicago P. Pow.	Detroit P. Ind.	Detroit P. Pow.
1840	53	51				
1841	55	53				
1842	46	48				
1843	47	52				
1844	46	50				
1845	49	54				
1846	52	55				
1847	59	62				
1848	59	66				
1849	68	77				
1850	63	69				
1851	64	68				
1852	70	77				
1853	78	80				
1854	78	78				
1855	88	88				
1856	85	85				
1857	90	90				
1858	72	80				
1859	83	93				
1860	78	88				
1861	73	82				
1862	73	70				
1863	84	64			73	55
1864	118	70			73	43
1865	143	74			120	62
1866	132	78	92	54		
1867	130	85	92	60		
1868	135	94	96	67		
1869	128	94	98	72		
1870	131	104	80	63	99	78
1871	110	91	75	62	84	69
1872	99	80	75	61		
1873	95	78	79	65		
1874	94	80	75	64	79	67
1875	98	87	70	62		
1876	83	79	63	60	64	61
1877	87	89	66	67	58	59
1878	75	83	60	67	60	67
1879	73	85	49	57	43	50
1880	70	74	60	63	46	48
1881	89	95	64	68	67	71
1882	103	107	84	88	75	78
1883	94	100	76	81	67	71
1884	95	108	81	92	73	83
1885	83	100	75	90	78	94
1886	83	101	72	88	70	85
1887	74	90	72	88	69	84

Table 29 (con't) The price and purchasing power indices of beef cattle.

Date	New York P; Ind.	New York P. Pow.	Chicago P. Ind.	Chicago P. Pow.	Detroit P. Ind.	Detroit P. Pow.
1888	81	96	74	88	75	89
1889	67	80	68	81	70	83
1890	71	86	59	72	60	73
1891	80	99	67	83	69	85
1892			58	76	62	82
1893			62	79	67	86
1894			58	83	62	88
1895			63	89	61	86
1896			55	81	45	66
1897			61	90	51	75
1898			62	87	63	89
1899			69	91	56	74
1900			69	84	56	68
1901			72	89	58	72
1902			84	98	72	84
1903			65	75	72	83
1904			66	75	66	76
1905			67	76	69	78
1906			69	77	68	76
1907			74	78	71	75
1908			77	84	72	78
1909			82	83	75	76
1910			90	87	88	85
1911			86	90	78	82
1912			108	107	100	99
1913			106	104	117	115
1914			111	111	118	118
1915			108	105	115	112
1916			122	94	116	90
1917			148	82	144	80
1918			188	95	166	84
1919			198	94	178	85
1920			170	74	164	71
1921			105	70	111	74
1922			111	73	105	69
1923			120	77	110	70
1924			118	78	107	70
1925			130	86	116	76
1926			121	78	119	77
1927			145	97	150	100
1928			178	118	177	117
1929			156	104	176	117

Table 29 (con't.) The price and purchasing power indices of beef cattle.

Virginia

Date	P. Ind.	P. Pow.
1867	94	61
1868	94	66
1869	88	65
1870	92	73
1871	64	53
1872	75	61
1873	64	52
1874	62	52
1875	75	66
1876	64	61
1877	70	71
1878	59	66
1879	61	71
1880	65	68
1881	66	70
1882	80	83
1883	79	84
1884	81	92
1885	62	75
1886	62	76
1887	59	72
1888	60	71
1889	51	61
1890	52	63
1891	52	64
1892	58	76
1893	61	78
1894	55	78
1895	58	82
1896	59	87
1897	59	87
1898	64	90
1899	67	88
1900	67	82
1901	69	85
1902	72	84
1903	78	90
1904	70	80
1905	72	82
1906	72	80
1907	75	79
1908	81	88
1909	83	84

Table 29 (con't). The price and purchasing power indices of beef cattle.
Virginia

Date	P. Ind.	P. Pow.
1910	87	84
1911	86	90
1912	102	101
1913	110	108
1914	114	114
1915	119	116
1916	121	94
1917	156	87
1918	199	100
1919	201	96
1920	188	82
1921	108	72
1922	120	79
1923	135	86
1924	116	76
1925	139	91
1926	127	84
1927	144	97

Data from the following sources:
New York: 1840-1891 Cornell Agr. Exp. Sta. Bul. 341, Table 8,
p. 196-197, 1914.
Chicago: 1866-1886 Prairie Farmer
1887-1891 Michigan Farmer
1892-1899 Cornell Agr. Exp. Sta. Bul. 341, Table 8,
p. 196-197, 1914.
1900-1928 U.S.D.A. Yearbook 1928, p. 913.
1929 Michigan Farmer
Detroit: 1863-1929 Michigan Farmer
Virginia:1867-1927 Va. Agr. Exp. Sta. Tech. Bul. 37, Table 85b,
p. 177-178. 1929.

Prices are for live weight at the yards per hundred, except
for Virginia which are the weighted prices to the producer.

Table 30. The price and purchasing power indices of hogs.

Date	New York-Chicago		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1840	54	52		
1841	58	56		
1842	51	52		
1843	53	59		
1844	55	60		
1845	49	54		
1846	55	58		
1847	65	68		
1848	63	70		
1849	60	68		
1850	50	55		
1851	59	63		
1852	66	72		
1853	73	75		
1854	65	65		
1855	69	69		
1856	80	80		
1857	84	84		
1858	64	71		
1859	68	76		
1860	77	86		
1861	57	64		
1862	49	47		
1863	63	48		
1864	117	69		
1865	155	80		
1866	129	76		
1867	56	37	70	46
1868	46	32	64	45
1869	64	47	70	51
1870	78	62	78	62
1871	78	64	65	54
1872	56	46	52	42
1873	51	42	51	42
1874	55	47	54	46
1875	67	59	61	54
1876	83	79	64	61
1877	79	81	60	61
1878	67	74	48	53
1879	44	51	44	51
1880	62	65	53	56
1881	65	69	61	65
1882	83	86	71	74
1883	94	100	68	72
1884	77	88	61	69
1885	70	84	56	67

Table 30 (con't). The price and purchasing power of hogs.

Date	New York- Chicago		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1886	59	72	55	67
1887	62	76	60	73
1888	69	82	60	71
1889	80	95	55	65
1890	68	83	51	62
1891	58	72	51	62
1892	64	84	55	72
1893	89	114	61	78
1894	83	118	61	87
1895	69	97	66	93
1896	60	88	63	93
1897	57	84	52	76
1898	61	86	53	75
1899	61	80	54	71
1900	76	93	68	83
1901	86	106	76	94
1902	97	113	87	101
1903	108	124	83	95
1904	85	98	68	78
1905	83	94	70	80
1906	86	96	86	96
1907	106	112	78	82
1908	84	91	73	79
1909	91	92	94	95
1910	112	109	110	107
1911	88	93	90	95
1912	92	91	88	87
1913	103	101	104	102
1914	104	104	108	108
1915	91	88	97	94
1916	113	88	111	86
1917	187	104	174	97
1918	220	111	219	111
1919	223	106	217	103
1920	179	78	186	81
1921	108	72	121	81
1922	111	73	121	80
1923	99	63	113	72
1924	104	68	113	74
1925	151	99	150	99
1926	163	106	162	105
1927	134	90	147	99
1928	119	79		

Date from the following sources:
New York-Chicago:
New York: 1840-1870 Cornell A.E.S. Bul. 341, Table 8, p. 196-197. 1914.
Chicago : 1871-1909 Ibid.
1910-1928 U.S.D.A. Yearbook 1928, p. 930.
1929   Michigan Farmer
Virginia: 1867-1927 Va. A. E. S. Tech. Bul. 37, Table 85b, p. 177-178, 1929.

Table 31. The price and purchasing power indices of wheat

Date	New York		Chicago		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1840	117	112				
1841	102	99				
1842	138	144				
1843	184	204				
1844	204	224				
1845	96	105				
1846	117	123				
1847	117	123				
1848	138	153				
1849	117	133				
1850	117	128				
1851	117	124				
1852	102	112				
1853	117	121				
1854	184	184				
1855	184	184				
1856	194	194				
1857	173	173				
1858	112	124				
1859	138	155				
1860	148	166				
1861	130	146				
1862	147	140				
1863	153	116				
1864	168	99				
1865	255	132				
1866	190	112	128	75		
1867	190	124	129	84	224	146
1868	158	110	82	57	220	154
1869	111	82	68	50	151	111
1870	130	103	91	72	127	100
1871	139	115	106	88	143	118
1872	149	121	99	80	162	132
1873	149	122	98	80	158	130
1874	116	98	77	65	133	113
1875	116	103	83	73	123	109
1876	122	116	107	102	114	108
1877	122	124	103	105	133	136
1878	104	116	79	88	97	108
1879	143	166	124	144	110	128
1880	119	125	99	104	109	115
1881	140	149	123	131	118	126
1882	112	117	90	94	109	114
1883	112	119	94	100	103	110
1884	87	99	71	81	88	100
1885	98	118	82	99	87	105

Table 31 (con't). The price and purchasing power indices of wheat.

Date	New York		Chicago		Virginia	
	P. Ind.	P. Pow.	P. Ind.	P. Pow.	P. Ind.	P. Pow.
1886	87	106	75	91	81	99
1887	84	102	75	91	74	90
1888	112	133	98	117	87	104
1889	92	110	75	89	81	96
1890	102	124	87	106	89	108
1891	102	126	88	109	95	117
1892	87	114	69	91	79	104
1893	78	100	60	77	61	78
1894	63	90	58	83	52	74
1895	69	97	63	89	60	84
1896	90	132	68	100	64	94
1897	92	135	88	129	81	119
1898	73	103	92	130	72	101
1899	82	108	83	96	65	86
1900	78	95	77	94	68	83
1901	84	104	73	90	68	83
1902	81	94	76	88	76	88
1903	83	95	85	98	79	91
1904	111	128	102	117	99	114
1905	88	100	90	102	90	102
1906	84	93	78	87	77	86
1907	101	106	92	97	86	90
1908	101	110	98	106	94	102
1909	113	114	112	113	112	113
1910	98	95	104	101	103	100
1911	97	102	92	97	91	96
1912	101	100	105	106	100	99
1913	95	93	90	97	95	93
1914	111	111	110	110	98	98
1915	103	100	115	112	116	113
1916	171	132	171	132	129	100
1917	214	119	230	128	210	117
1918	219	111	227	115	211	106
1919	219	104	229	109	216	103
1920	178	77	228	99	233	101
1921	110	73	128	85	133	89
1922	120	80	116	76	114	75
1923	112	72	104	67	110	70
1924	147	97	161	106	126	83
1925	155	102	167	110	160	105
1926	133	86	141	92	143	93
1927	123	82	143	96	131	88
1928	115	76	133	88		
1929	104	69	127	85		

Data from the following sources:

New York: 1840-1854 Prices to the producer at Albany, N. Y., from the American Agriculturist of August, 1854.

             1855-1865 Prices of white wheat at N. Y. C., almost exactly the same as at Albany. American Agriculturist.
1840-1865 prices on Jan. 1st.
1866-1929   "   "   Dec. 1st.

             1866-1925 Farm price of wheat in N. Y. state from U. S. D. A. Stat. Bul. 14, TABLE 44, p.90-91, 1927.

             1926-1929 Farm price of wheat from the respective U. S. D. A. Yearbooks for N. Y. state.

Chicago: 1866-1893 No. 1 N. Spring wheat. U. S. D. A. Yearbook 1920, p.550.

           1894-1928 No. 2 Red Winter wheat. U. S. D. A. Yearbook 1928, p.670.
All Chicago prices are the Dec. averages.

Virginia: 1867-1927 Va. Agr.Exp. Sta. Tech. Bul. 37, TABLE 85a, p. 175-176, 1929.